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THE VICTORIA TECHNICAL INSTITUTE.

The annual Report of the Victoria Technical Institute has just been published. To those who are interested in the spread of technical education in this Presidency, the reading of that portion of the report which shows what the actual work of the Institute for the last year has been, must give rise to feelings of disappointment, if not of despair. It seems as if the Council of the Institute are in a position to do nothing, the net result of two years' work being an expenditure of Rs. 76 on cookery lessons, and a grant of Rs. 136 to the Trichinopoly A. V. Technical Institute. The Council feel that they are bound to remain idle until Government shows them a way of being useful. The Council blame Government for being unsympathetic and apathetic, and Government officials blame the Council for not acting more on their own responsibility independent of Government support. We believe that the case for the Council has been ably put before Government by Mr. John Adam, the Secretary, a man quite competent to make the best of what exists, since he has beer in close touch with the Institute since its inception. We also believe that His Excellency the Governor is shortly to reply to the petition of the Council, and it is confidently expected by the Coun-

cil that his reply will be "just and sympathetic." We think the time for recrimination has passed. In the interests of technical education, some plan should at once be formulated whereby the money subscribed to the Institute might be utilised in the best possible way for the furtherance of the object for which the Institute was founded. Before entering into details, we think that there has been some misconception as to the part Government has hitherto taken in its dealings with the Council. It is quite true that Government promised to help the Institute, and as an earnest of its promise, it built the large and handsome buildings in the Museum compound, intending to hand them over to the Council when completed. But we are informed that for 18 months Government waited for some definite proposals from the Council as to the uses to which the buildings were to be put when completed, and that up to the present, no proposals satisfactory to Government have been submitted. The buildings were ready for occupation about 18 months ago. At the request of the Madras Dramatic Society, the theatre was occasionally lent to the society. Hence the general impression that Government has deprived the Institute of a building originally promised to the Council and has handed it over to an irresponsible society for the purpose of amusing the public. This impression is wrong. We understand that His Excellency has determined to give the building to Dr. Thurston, and that henceforth it will form an integral part of the Museum. The case against the Government has certainly not been established. For our part, we are genuinely pleased that the Institute is not to be saddled with the Pantheon Road buildings. Their situation is fatal to the object they are supposed to serve. Situated far from the centres of commercial activity, ill designed for purposes of experimental lectures or scientific laboratories, they would stand idle and neglected, a burden to the Council of the Institute. What then can possibly be done to make the Institute a success? What plan is feasible for the best employment of the income of the Institute? In a matter of this kind about which so many and varied opinions exist, it may seem somewhat rash to formulate a scheme and add one more contribution to a cause already far too much written about. But a certain amount of experience as Secretary of the Institute, and a certain amount of knowledge derived from actual experience of similar institutions, lead us to think that perhaps the plan we

propose may meet with respectful attention if not with enthusiastic approbation. The resources of the Institute are limited. At the most, the Council cannot spend more than Rs. 400 a month without encroaching on the capital. Hence it is out of the question to attempt to build factories or workshops in which those trades which exemplify and assist technical education may be practised, and the principles underlying them demonstrated. In Madras, fortunately there are many works where students may learn almost all that can be taught in a well-equipped Technical School. The School of Arts especially will be of the greatest service in training the young in the principles of those handicrafts which they will pursue when they are older. The Engineering College also will be a supplement to the School of Arts. The Perambore Workshops, The Buckingham Mills, Messrs. Deschamps & Co., Messrs. Orr & Sons, and Messrs. Simpson & Co., may be expected to assist the Council in its endeavours to spread technical education. Given that the heads of these institutions and firms are in sympathy with the objects of the Institute, we see that we have already in existence workshops and machinery where the elements of technical training may be given. How then can these institutions be brought into close touch and intimate connection with the Institute? It seems to us that the sons of artisans who are actually working at trades might be induced to continue a general education with technical training if they were given scholarships equal in amount to the sum they would be likely to earn as assistants to their parents. The mistake the Council made in days gone by was that the scholarships were given to the wrong people. The high-caste Brahman was not likely to carry into practice the principles he had learnt; the scholarship was useful to him, but in no case can it be truly said that the scholarship enabled the holder to obtain a thoroughly sound technical education. If the children of artisans could be secured when young, and a general education given them side by side with technical training, there might be some hope in the near future of the creation of a class of workmen far superior to those at present met with. The boy the Council chooses to help would be an apprentice, tied by rules and agreements, assisted by money from the Institute, and in return he would be expected to submit to whatever terms and conditions the Council might draw up. The School of Arts would be the central institution, and for the purpose of seeing that the Institute

apprentices are being well cared for, a governing body might be constituted, consisting of two members nominated by Government, say, *ex-officio* the Principal of the College of Engineering, and the Professor of Engineering, and the Council would nominate two members. The Director of Public Instruction would be the President of the governing body, and he would be also the controlling authority. In this way, the School of Arts would really become a Technical Institute, watched over by Government, assisted by the Council of the Victoria Technical Institute, and controlled by a responsible Government official. Speaking roughly, there would be at least 100 apprentices, and the number leaving would be about 25 a year. These boys would be bound by hereditary caste feeling to work at the trade of their forefathers, and they would start far ahead of those who had not received this preliminary education, and most probably, the work they would produce would be an advance both in quality and design on anything that had previously been made. We submit this scheme to the Council and to Government believing it to be the only satisfactory solution of a problem bristling with difficulties.

Since writing the above, the following extract was brought to our notice. It is an account of the establishment of a "Central School of Arts and Crafts" by the Technical Education Board of the London County Council. It will be seen that the governing body or Visitors corresponds to the board consisting of two members nominated by Government, two by the Institute, and the Director of Public Instruction. In fact, the scheme we have thought practical is almost similar to the scheme of the London County Council.

A SCHOOL OF ARTS AND CRAFTS.

"That active public body, the Technical Education Board of the London County Council, has happily now come to the rescue. It has resolved to establish a 'Central School of Arts and Crafts,' and will open this school in temporary quarters at Morley Hall, Regent-street, on Oct. 12th. The school is under the direction of Mr. George Frampton, A.R.A., and Mr. W.R. Lethaby. As the scheme is in our opinion of the first importance, we quote the following statements from the provisional prospectus :

It (the Central School of Arts and Crafts) provides for apprentices, pupils, and workmen engaged in, or connected with ,artistic handicrafts, the best instruction in art and design *as applied to their particular industries*. No attempt is made to meet the requirements of the amateur, or to do the work of

the teachers in figure and landscape drawing and painting; nor is the instruction given directed in any way towards the preparation of pupils for examination. The special business of the school is the industrial application of decorative design, and students are expected to concentrate their studies on the several branches of the industries in which they are engaged. The work of the school during the session 1896-7 will be specially adapted to those employed in the different departments of the building trades, architects, designers (especially in textiles, wall-papers, furniture, and metal work), workers in glass bronze and lead, enamellers, and the various branches of the gold, and silver trades. Other departments will be added according to the demand.

An important department of the school will be the classes for gold and silver workers, and it is hoped that the artist craftsmen in the gold and silver trades will take advantage of the opportunity thus offered for the study of those branches of their industry which they have little opportunity of learning when working for commercial purposes. Students in this department will be permitted to study in the classes for design. drawing and modelling, casting in metal, enamelling, and any other subject bearing directly on the art of the gold or silver worker. Facilities will be given for the student of architecture to study modelling, ornament, stained glass, lead work, and other work in its application to building. A special course of lectures will also be provided in the mechanics of construction, including the application of iron and steel to builders' work. A class for practice in the elements of stone-cutting, suitable for architects will be arranged; also a similar class for lead-work. The design of modern buildings will be specially considered. Modelling for ornamental purposes, including moulding and casting of bronze and silver, will also receive special attention. Students of modelling, colour decoration, and stained glass will be expected to devote some time to the study of architecture as a branch of industrial art. Students in textiles, wall papers, &c., will have before them fine old and modern examples, as well as living flowers and plants, as aids to their studies.

All students will be expected when not working in any specific class to devote most of their time to the study of design in its application to their own art or craft. The principal classes will be held in the evenings, but during the session, the school will be open every day, except Saturday, for the practice work of the students.

Visitors.—Harry Bates, A.R.A., George Frampton, A.R.A., W.R. Lethaby, John S. Sargent, A.R.A.

Teachers and Lecturers.—Architecture, Halsey Ricardo; design, colour, drawing, and decoration, William Margetson; sculpture and ornament as applied to architecture, E. Roscoe Mullins; enamelling, Alexander Fisher; silversmiths' work, W. Augustus Steward; lead casting and ornamental lead-work, F. Troup; stained glass, Christopher Whall; moulding and casting in metal, Messrs Rovini and Parlanti.

Classes for the study of textiles and wall-papers, furniture design, gesso-work and gilding, lettering and illumination will also be arranged."

St. JOSEPH'S COLLEGE, TRICHINOPOLY.

The College seems to have improved in every respect. The results when compared with the average results for the Presidency are very good. In the B.A. English Branch, 59 passed out of 90, and in the second language division, 48 were successful out of 59, with 5 in the first class. In the Science division, 57·3 per cent. obtained diplomas with 2 in the first class in Physical Science. In the F.A. examination, 41 passed with success out of 70, with 6 in the first class. The Matriculation candidates were equally successful, 54 passed out of 94, and four of the first seven in the first class were sent from this institution. Undoubtedly, the excellence of the staff sufficiently accounts for these brilliant results. The college department contains 366 students and the Upper Secondary department is made up of 567 students. To teach these there are not less than 9 European Professors and of the large native staff, 5 hold the degree of Licentiate in Teaching. Consequently, the college is very popular even among Brahmans. One-fourth of the whole college comes from the Tanjore District, notwithstanding the existence of the Kumbakonam College and the St. Peter's College at Tanjore. This fully bears out what we previously insisted on, that students fill those colleges in which the staff is efficient and consequently the results are satisfactory. A most important addition to the buildings of the college is a museum partly built by the college authorities and partly by Government. The hostels seem to have worked well, but there is the standing complaint that the students are impossible to please with regard to their food and cooking A technical department attached to the college attracts 181 students, sons of officials, merchants, traders and artisans of the surrounding districts. Seventy five per cent. of these were successful in the various examinations they appeared for, and this institution has furnished the only two successful telegraph candidates in the Presidency. The observance of the first college day and a successful prizegiving are favourably noted by the Director. With such an excellent record, the Director heartily congratulates the Father Rector, the Manager and the staff of assistants on the very successful administration of the college during the year.

A QUESTION BEFORE THE SENATE.

A proposition of mine has been before the Senate now for nearly a year; and I cannot say when it will be taken up for discussion. It stands on the Agenda paper as follows:

"That in by-law 152, clause (*d*) be omitted."

The clause (*d*) of by-law 152 which I wish to get removed is as follows: "Before a candidate who has failed in any division or divisions (of the B.A. degree examination) presents himself for re-examination, he shall, unless specially exempted from so doing, produce a certificate or certificates of having subsequently attended during two terms, at an authorized college or colleges, the prescribed course of instruction, in the division or divisions in which he has failed."

This restriction has been in force since 1893, and has, I think, been working prejudicially to the cause of education and also to the interests of the candidates for the B.A. degree examination. It has added enormously to the strength of the collegiate institutions in the Presidency; it has contributed to the up-keep of institutions which might have perished otherwise; it is an anomaly in the system of examinations in vogue in the Madras University; and it does not appear to have improved either the general attainments of the candidates, or the results in the several branches of the B.A degree examination.

I am fully conscious of my inability adequately to represent my case, and my object in taking the question to the pages of a journal is to try if I can at least so present it as to induce abler men to take it up and advance the arguments in support of it in a manner that will carry conviction to the members of the Senate. The rule adds unnecessarily to the cost of education; and I believe that all friends of liberal education look with disfavor on every addition to its cost. That education is costly in its higher grades, and that many are in consequence debarred from seeking its benefits are admittedly evils, though they may be unavoidable. I am sure, therefore, that no one will stand by the by-law under reference simply on the ground of the addition it makes to the expenses of education.

There is a preliminary objection to the rule as it now stands which, I think, is insurmountable, namely, that it is unnecessary, as

there is another by-law which covers exactly the same ground and with which, therefore, it clashes, and that it casts also a slur on those who are responsible for the efficiency of our colleges. By-law 152 of the University contains the provision, that each candidate must forward with his application for the B.A. degree examination "certificates in the forms hereinafter prescribed, from the head of some college authorized in that behalf by the Governor of Fort St. George in Council, to the effect that he has attended an authorized college or colleges for a period of at least four terms after passing the First Examination in Arts and has completed the course of instruction prescribed for the division or divisions in which he proposes to appear." This should be read along with by-law 289 which declares that "The certificate shall not be granted unless a student has completed the course of instruction *to the satisfaction of the authorities* of his college." I solicit particular attention to the words in the above by-law which I have italicized. The authorities of colleges are not bound, according to the existing rules of the University, to grant the 'term' certificate in case a student should not have completed the course of instruction to their satisfaction; and as the University will not admit such a student to the examination, there is ample provision in the by-laws, apart from the restriction under consideration, to prevent a student from rushing into the examination-hall when he is not completely prepared for the ordeal. The authorities of colleges are armed with full powers to refuse to the student the passport which alone can secure him admission to the examination, if they are not satisfied that he is fit to present himself for it. If, notwithstanding this, he is permitted to appear when in a condition of incomplete preparation, the fault is not his, but must be laid at the doors of those who are responsible for his studies. He is either fit for the examination or is not fit for it. If the former, and if the college authorities rightly gave him the certificate of fitness to attend the examination, his failure is an accident for which the compulsory attendance of another year at college is unnecessary; but if he was unfit to appear for the examination, and was yet permitted by the college authorities to do so, a further year's tuition under such unreliable teachers is likely to do him more harm than good. He should not certainly be made to seek again the help of these college authorities who had presumably done their best for him and could possibly

have nothing more of value to impart to him. If it be that he got their permission to appear for the examination even when they knew that his studies were imperfect, they should be charged with the crime of precipitating the inexperienced youth into the travails of an examination when they knew his inability to cope with them. It is a crime indeed knowingly to mislead the youths entrusted to them. They are or ought to be men of experience and wisdom, competent to guide in such matters the youths whom they undertake to instruct and improve. And when such persons fail in their duty, and become the authors of the needless sufferings of the inexperienced youths that confide in them and of their parents, the University may well exercise the power vested in it of cancelling the privilege of affiliation conferred on such colleges. But it has entirely ignored this fact and has enacted that the unfortunate youths should be under the tutelage of their false guides for an additional year. It should not at all be imagined that it is my opinion that the authorities of our colleges should he held up to public censure for the failure of every one of their students. All that I mean is, that they have it in their hands to carry on the desire of the Senate and submit for the B.A. degree examination only such students as have completed the course of instruction in a satisfactory manner, and that it is needless to require such students as have so completed their course of instruction to attend the colleges for another year. If the college authorities do discharge this obligation laid by the University on them in a conscientious manner, the rule under consideration is certainly an unmerited censure on them, as it presumes incompleteness in the studies of the candidate that fails, and directs him to complete them by a further course of a year in a college. And if the obligation is not honestly discharged by College authorities, the University should take steps to remedy this evil and not compel all students indiscriminately to herd into colleges.

It may be that the authorities of some of our colleges are not quite alive to their duty in this respect and that they seek popularity even at the sacrifice of their conscience. If this take place continuously for many years, the policy is sure to prove suicidal; and the University may be forced to cancel the affiliation of such colleges as prove by their conduct their unfitness to be kept under its wings. But I think the rule of a further period of attendance at a College

was framed by the Senate more in ignorance of the provisions stated above than from a conscious impulse that the authorities of colleges cannot be relied upon in this matter.

Going into the merits of the question, I cannot imagine a single argument in support of the rule capable of carrying conviction to an unprejudiced mind. The object of the Senate in framing this by-law must be, as I have said, to ensure a fair degree of preparation in the candidates whose failure in the examination may be taken to imply an incompleteness in their studies. How far this presumption is justifiable we may well consider. But ignoring this question and granting that it is a valid inference, it does not follow that these students will make up the defects in their education by an additional year's stay or even by many years' stay in their respective colleges or in others. Mere attendance at a college cannot of itself improve the knowledge of a youth. The enormous numbers now attending the several classes in our more popular colleges render it impossible that students can receive any individual attention from the professors. In the Madras Christian College, for example, the strength of the senior section of the B.A. class was last year 272. What amount of personal attention the professor of English literature could have bestowed on each one of nearly three hundreds of students, we can well conceive. This would have been almost *nil* even if the strength of the class had been only a fourth of what it was. The Government has fixed a maximum strength of 60 students for College classes; but at the Presidency College, the students in the senior section of the B.A. class numbered in 1895 no less than 166, a little less than thrice the maximum strength prescribed by Government. These are the only two colleges in Madras to which students show a predilection. They contain provisions for instruction in almost all the branches of the B.A. course, with guarantees of efficiency in the eyes of the student, and their numbers bear testimony to their popularity. And if in them individual attention is impossible, and if students will yet flock to them in large numbers with confidence in their ultimate success, to whatever circumstance this may be ascribed, it cannot certainly be claimed as due to the superior efficiency of the instruction imparted in them. Not that I dare question the superior capacity of the staff of instructors employed in these two colleges. Far be this from me. But I cannot conceal from myself

the fact that it is beyond the powers of a human being, as such, to attend individually within the short period of an hour in the day to each one of 272 students. So that the student has necessarily to rest content with the *lectures* of his teachers. Now the general nature of these lectures must be determined by the attainments and capacity of the average student, and cannot therefore be of much benefit to those who form the tail-end of the class and hence the main strength of the failure lists. It may be said generally of all students, that such of them as fail in the examination after a course of instruction extending over four or six terms (two or three years), are not likely to benefit much by a further period of instruction, especially for the reason that their personality is lost to the teacher in the crowds attending his classes. If possessed of many powers of comprehension, these students must have been put in the right track to acquire knowledge during the normal course, sufficiently long, of college training. If they should not have secured in that period even this preliminary step towards the acquisition of knowledge, the less a college has to do with such pieces of humanity the better it would be for all concerned. And if, on the other hand, they have been inculcated in the right method of preparing themselves to stand the tests of the University, they should certainly be left to their own resources and not be forced to swell the number of the gaping and noisy youths in a class. The college course covers formally a period of four years; and as things go at present, it is in the majority of cases a period of five years, as the candidates generally take up the Science branch of the examination in the third year of their B.A. course. And one who requires a further period of attendance in a College must be a dunce whom no length of study can possibly benefit; and a college need not be encumbered with his presence.

We should not forget that we are here considering the case of candidates for the B.A. degree examination. These reach that position only after having successfully got through the Matriculation and F.A. examinations. The chaff is winnowed first by the Entrance examination of the University, and only heavier materials are left to be further sifted at the First in Arts examination. If the frailer particles should not have been blown away under these two blasts and should yet remain behind, the tests prescribed by the University, and the examiners who wield them should be blamed,

and there is no good of multiplying the barriers in the way of the student, because of our inability to maintain in a fit condition those which have already been provided for the purpose.

It is clear then that a case has yet to be made out for the rule under consideration. College authorities are fully empowered to help the University in keeping away unworthy candidates from the examination; and those candidates who fail in it from no irremediable fault of theirs can very well be left to themselves, as the additional year's stay in the crowded rooms of the better-staffed institutions of the Province cannot possibly work any great change in them. It is true indeed that there are no less than *fifteen* First Grade Colleges affiliated to the Madras University. And yet out of the 860 candidates who appeared last year for the English branch of the B.A. degree examination, such a large number as 529 came from but *three* of the fifteen Colleges, *viz.*, the Christian College, the Presidency College and the College of the Jesuits at Trichinopoly. Of the remaining twelve colleges, many are situated at places enjoying many advantages, climatic and other; and the cost of education in a few of them is also very low. The mere mention of some of the localities, Bangalore, Trivandram, Vizianagaram, Tanjore etc., is sufficient evidence of this statement. These colleges are yet strained out, and the three named above are full to suffocation. Various causes combine to produce this result and this is not the place to enter into this question. But the fact should be noted that while Dr. Miller and the Principals of the other favored colleges are concerned as to how to accommodate the large number of applicants for entry into their institutions, the concern of the rest of their brethern at the empty benches of their classes must be equally great. And the rule of further attendance at a college, no matter which, seems to have been invented in their special behoof. Term certificates the authorities of these colleges cannot afford to refuse, for that would be suicidal and would empty their rooms of the few who now go there. And the University has, therefore, gone to their rescue by driving the unwilling students into their doors by the enactment we are considering. Thus the rule has a tendency to prolong the existence of institutions which do not deserve to exist, and which but for it would have perished long ago. It cannot be said that these are as well officered and as well managed as either the Christian College or as the Presidency College, or

that all of them deserve to stand on the affiliation list. And if, notwithstanding this, some of them drag on a precarious existence, it must be due in part at least to the compulsion put upon the students to drone away one or more years inside a college building whatever be their inclinations in the matter. The University is here playing into the hands of these colleges, while these in their turn are adding to the income of the University by granting to their students indiscriminately certificates of fitness to attend the examination.

There is one more consideration that is equally telling against the rule of the University in this matter. It is the circumstances that education as estimated by what of it the candidates carry up into the examination-hall has not advanced in quality during the years subsequent to the introduction of the restriction of further attendance at affiliated colleges. Of the following two tables, the first shows the percentage of successful candidates in English, the second in Science, during the period of four years for which the rule has been in force as compared with the percentage for the four years prior to it:

I. English.

Year.	Percentage of success.	Year.	Percentage of success.
1889	60·1	1893	77·5
1890	59·6	1894	63·1
1891	73·7	1895	61·2
1892	50·6	1896	64·0
Average for the four years.	61·0		66·5

II. Science.

Year.	Percentage of success.	Year.	Percentage of success.
1889	57·1	1893	52·5
1890	44·8	1894	54·6
1891	51·6	1895	60·6
1892	64·6	1896	61·8
Average for the four years.	54·5		57·4

I confess that the averages appear to show at first sight improvement in both cases. But it should be borne in mind that in the latter period of four years for which the averages appear to be a little improved, the conditions of the examination have radically changed; and the changes are such as to entitle us to expect much

greater improvement than what is indicated by such small figures as 5·5 and 2·9 per cent. Along with this rule, an alteration was made in the examination calculated to render success in it considerably easier than before. In former years, every candidate had first to appear and pass an examination in the English and optional languages combined, and could appear for the science branch only after succeeding in the former. The course was then a *bifurcated* one and not *trifurcated* as it has been since 1893; nor had the candidates then the option of taking up any one of the two divisions in any order they chose. At present, the divisions are not only three in number, but can also be taken up separately or in any combination the candidates might like. The burden of the course was lightened first by a bifurcation of it into the language and science divisions; and it has been further lightened by a trifurcation of it into the divisions of the English and optional languages and of Science. If the improvement of 5·5 and 2·9 per cent. be apportioned fairly between this and the additional year's stay in any one of the three crowded colleges or in one of the twelve others, what of it may be due to the latter cause may have to be measured by a negative quantity. It cannot reasonably be any positive figure.

The improvement is moreover not so remarkable as to make the supporters of the rule jubilant over it. There is room in it even for the opposite feeling. For the average success in the Science branch was in the five years ending 1886 so high as 75·6 per cent., full 18 per cent. higher than the average of the last four years, a circumstance from which it may be argued that in recent years the results have considerably deteriorated and that the University has not hitherto succeeded in restoring them to the old standard.

Thus the rule stands condemned from whatever side it may be viewed. It is superfluous as the object has been provided for otherwise; it is pernicious as it renders instruction inefficient even in the better colleges and more so as it gives a lingering life to the ill-managed institutions; and it has not improved the attainments of those who flock year after year to the B.A. degree examination.

I have heard it said that uniformity requires that the rule should stand in force. But, as a matter of fact, uniformity, if it can support an argument, supports the abrogation of the rule, and

not its retention. The University conducts fifteen examinations annually, and of these fifteen, the B.A. degree examination is the only one in respect of which such a rule is in force. There is, no doubt, another examination, the Matriculation, candidates applying for which have been placed under the same restrictions. But these are less stringent than that I am here considering. In the case of the lower examination, the candidate is allowed full freedom if he is twenty years of age or more; and even if younger, it is sufficient if he produces "satisfactory evidence of character and of having received suitable instruction." If this concession the Senate sees no objection to grant in consideration of the age of discretion to one who applies for the Matriculation examination, much more strong—nay, indisputable is the ground of my contention that the obstacle thrown in the way of those who have almost invariably attained the age of discretion and have besides shewn a mental calibre of some worth from their success in the two lower examinations, and who are not consequently such as should be kept in leading strings, should be immediately removed.

I have only one more statement to make; and that is, that the rule has had the intended effect of driving the candidates for the B.A. degree examination into the affiliated colleges. The ratio of candidates under the heading " Private study " has fallen considerably since it came into force. In 1891-92, prior to the enactment of this by-law, these "private" candidates were 20·5 per cent. of the total number for the English branch, but made only 10·4 last year, and the year before they had gone down to 7·7. In the Science branch, they are disappearing even more rapidly; for their percentage last year was only 10·4 against 48·1 in 1891-92. Thus by a rigid adherence to the rule and by a strict control over exemption certificates, the Syndicate has carried out the object of the Senate with remarkable success, and may soon stamp out of existence the detested class of " Private study."

In conclusion, I shall only repeat that the rule is unnecssary, as the granting of certificates is entirely at the option of college authorities, that it is ineffectual as regards improvement in education, and what is worse, that it is even mischievous in its operation; I do not know what more need be said of any rule to shew that it ought to be removed from the statute book of the University.

N. VAITHIANATHEN.

VERNACULARS IN THE B.A. COURSE.

Candidates for the First in Arts and B.A. examinations of the University of Madras are permitted to take as their second language either a classical or a vernacular language. In the opinion of those most qualified to speak on such a subject, the study of a candidate's own vernacular is far inferior as a mental training to the study of a classical language. Sir Henry Maine, in one of his convocation addresses at Calcutta, said :—" One great step forwards has been made in the substitution, of course, the partial and gradual substitution, of classical languages for vernacular languages, as subjects of examination. [This was spoken thirty years ago, but the University of Madras has not taken this forward step yet.] Independently of the difficulty of examining in languages, many of which have no true literature, or which have only a fictitious literature, a literature of translations, you must see what a premium is placed upon flimsiness in knowledge, when a young man is examined in a spoken dialect which is picked up, half unconsciously, in conversation and by the ear, against another young man who is examined in one of those classical languages which, before they are mastered, bring out the strongest powers of the memory and the reason." The examination for the B.A. degree is intended to test whether a student has received a liberal education. Sir Henry Maine was evidently of opinion that an examination in the student's own vernacular does not test whether he has received a liberal education.

A student who takes Sanskrit or Latin for his second language is able to read books that he has not studied for University examinations, but the same cannot be said of those who take one of the Dravidian languages. The strongest upholders of the Vernaculars admit that ninety-one per cent. of graduates who have taken a Dravidian language cannot construe a book that has not been explained to them by a Pandit. (" S.M." in *Madras Mail*, 20th July, 1896 ; B.V. Kameswara Aiyar in *Educational Review* May, 1896.) The obvious inference from this state of affairs is that vernacular literature is unintelligible pedantry, but, curiously enough, these two champions of vernacular literature fail to see that they are condemning what they profess to defend. The Dravidian languages may engage the attention of the antiquarian and the comparative

philologist, but they are not fit to form part of a course that includes science or philosophy, and the study of good English authors. The Dravidian languages are unlike the modern European languages. The European languages have a rich vocabulary and are capable of expressing modern ideas. In the Dravidian languages nothing is now written except imitations of ancient pedantry. If anyone wishes to write in Tamil nowadays, he has to write the stalest of commonplaces; for the language is extremely poor and cannot be made to stretch. Anyone who has tried to translate an ordinary passage of English knows that this is the fact. The educated native writes in English as a matter of course, when he wishes to discuss any subject of importance. This being the case, ancient books or modern imitations of them are the only possible text-books; and however grand they may seem beside the street-ballads of modern Tamil and Telugu, they shrink into the most meagre compositions, when compared with the books prescribed in English. I for one am not tempted by the beauty of the Tamil works I have read for University examinations to proceed with the study of Tamil literature. I will translate a few stanzas from the *Kamba Ramayanam*, chosen at random, or rather chosen so as to avoid indecency. I may remark that a recent examination scandal in Travancore supplies a proof of the indecency of vernacular literature. An examiner, called to account for setting an obscene question paper, alleges in his defence that the passages chosen by him are a fair example of the text-book. Here is the passage from *Kamba Ramayanam:* "After the gods went to their respective homes, Visvamitra, who surpassed others in his unbearable penance, crossed that desert which had been made cool for a time by the full-blown flowers that the gods had made to rain, and gave to *Rama* weapons that were like *Tiruvannai Jadyappa's* words that act like medicine on the disease of human poverty. As soon as that wise one with curbed passions gave them to *Rama* with the necessary directions as to the sacred words to be uttered when they were to be used, those divine weapons went with irrepressible joy to *Rama;* just as all the effects of the good deeds of a man with a pure heart go to him in his next birth, the divine weapons said, 'O brave one! we have come to you. We cannot bear separation. We will, like your younger brothers, do for you whatever you properly bid us do.' 'This is good,' replied he. From that time they were doing

out-door work for him of the colour of the flowers just before they change into fruits."

This is the frigid writing of a dreaming pedant fed on grammar and rhetoric, not the writing of a man who knew life. A candidate for the B.A. degree has to plod through nearly three hundred and fifty stanzas of exactly the same sort, and four hundred stanzas from other works, some as good as this, others much worse. He has also to be prepared to answer questions on grammar, which are set on the assumption that he has got by heart a certain book of Tamil grammar called *Nannul*, which consists of a few hundred stanzas. This is a fair account of the vernacular branch of the B.A. examination, and this is the sort of stuff which is taught along with Shakespeare and Carlyle and the discoveries of Helmholtz.

If the affiliated Colleges had proper teachers, less mischief would be done, but the teaching is in the hands of ignorant men. We laugh at our forefathers for believing in witchcraft, but what will the next generation say of us who entrust the teaching of the vernaculars in the leading colleges of the Presidency to men, full of ignorant contempt for what they do not understand? A Pandit of the leading college in the Presidency is in the habit of sneering at Shakespeare to his classes, although he cannot read a word of English, and of exposing his ignorance—he thinks that he is showing his cleverness—by deriving from his vernacular the few English words he knows. Does the Director of Public Instruction think this learned man is a suitable instructor for B.A. students? The ordinary Pandit has no knowledge of English, and his ideas of teaching end with expatiating on commonplace in loud bombast. Many of these Pandits compose poems on the model of the ancient books, and if the Board of Studies desires, their poems may be prescribed as text-books for University examinations. The nature of Pandit poetry may be gathered from a touching complaint recently made in rather imperfect English by a student. "This text, our Pandit says, is very much above our standard. Though not so, he himself says it is very difficult for him to make us understand it. It is compiled by———, the Pandit of———college. Each and every poetry has two different meanings, figures of speech, and some stories connected with higher books. To divide a piece of poetry into syllables is itself somewhat difficult. This brings too hard work on us." The mind of the writer, a student of a Junior

F.A. class, was evidently giving way under the strain, but surely the most flinty-hearted Fellow of the University of Madras cannot read these words unmoved. It is lamentable to think how many promising students may have their intelligence crushed out of them by the intolerable weight of such texts and such teachers.

A course of vernacular study incapacitates a man for reasoning. This may be seen in the two champions of vernacular literature already mentioned. They insist on the importance of a sound knowledge of a vernacular to enable a graduate to enlighten his illiterate countrymen. But a sound knowledge of a vernacular language, as understood by them, consists in soaking your mind with *Nannul* and Pandit poetry. Any child might see that such a course can only raise a barrier between the graduate and his ignorant countrymen. Would anyone recommend a graduate of Oxford to study Dr. Donne and the rest of the metaphysical poets in order to become the instructor of a Suffolk agricultural labourer?

C. R.

PRESIDENCY TRAINING SCHOOL FOR MISTRESSES.

Miss Arnold, the Superintendent, as usual has made the Report of the school very interesting, notwithstanding that dry statistics must form a large portion of the record of a year's progress. The only disappointing feature of the report is the gradual decline of the numbers of the English section of the Practising School from 106 in 1893-94 to 54 on the 31st March 1896. It is impossible to successfully carry on a Training Institution without a large Practising School, and naturally the Superintendent and the Director express some anxiety. The Director thinks that if the Matriculation results are improved, the school will increase in popularity. The Training section seems to be very popular with the teaching community. Of the 23 students of the Upper Secondary Grade, no less than 15 receive no stipend from Government. Miss Arnold seems to have given great attention to Natural History and Object Lessons. She remarks that "considerable difficulty is experienced in giving these lessons for the following reasons :—

(1) "The idea is to supply the students with information and at the same time to make them reason out the "why" and the

" wherefore " and to exercise their observation, so that they may see clearly the way in which the subject should be treated when dealing with a class. The progress made is therefore very slow.

(2) "The absence of terms to denote certain things or ideas causes confusion, *e.g.*, in dealing with the honey-bee, the word கூடு had to be used to denote the hive, the honeycomb and the cocoon. If something could be done to supply terms for things or parts of things which the Hindus, possibly from the defective exercise of their observational powers, have not hitherto seen any necessity for differentiating, a great boon would be conferred on teachers of Object and Natural History Lessons."

In the Telugu section, a Sudra widow was unsuccessful. " She was absent on account of illness for some time previous to the examination and she was told that she was not adequately prepared for the examination and she must not appear for it. Trusting however in the favour of the goddess Lutchmi, she presented herself with the other candidates. The goddess, not countenancing this defiance of authority, withheld her kindly influence and the candidate failed."

This explanation is more than satisfactory, as is also the remark that academic costume was not worn on account of the heat. The Director concludes his review with the remark that the generally efficient administration of the institution during the year was creditable to the Superintendent and her assistants.

DEPARTMENTAL STORIES.

By "Riverside Dweller."

The Prize Distribution.

The eventful day at last dawned—the day fixed for the annual prize distribution of the College of Universal Knowledge. Although the institution was in full session, its Principal, Mr. Balderdash of the Indian Educational Service, had done no work for a week. Every moment of his valuable time had been devoted to preparations for the approaching function at which His Excellency the Governor was to preside. And it was no ordinary function, for

Mr. Balderdash was nearing the completion of fifteen years service, and there loomed before him the personal allowance of Rs. 100 a month, which Government could at its will confer on such Indian Educational Officers as were deserving of it after fifteen years hard labour. If His Excellency, argued Mr. Balderdash, made a complimentary speech—and of course in common politeness the Chairman was bound to do so—the personal allowance was as secure as if it had been lodged in the Bank. Mrs. Balderdash too had her ideas. The platform and the first ten rows of chairs were reserved for "the rank and fashion". In spite of Mr. Balderdash's feeble remonstrances, the worthy matron had decided to pay off some old social scores. Those people whom she wished to honour were to sit on the platform, actually on the same level as His Excellency the Governor, whilst those whom she desired to snub were to be relegated to the lower regions, in other words, they were to crowd into the first ten rows of chairs.

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His Excellency emerged from Government House with a bored look upon his aristocratic countenance and took his seat in the carriage. He was accompanied by one of his Aides-de-Camp, the Hon'ble Adolphus Finnikin, Captain Bankshire Dismounted Yeomanry (failed candidate for Sandhurst). As the vehicle began to move, His Excellency addressing the Hon'ble Adolphus in a sepulchral voice said :—

"What is this place we are going to ?"

"College of Universal Knowledge, Sir," replied the A.D.C. "Mr. Balderdash, Principal."

"Confound the College of Universal Knowledge and Mr. Balderdash, Principal," sighed His Excellency, for even Governors occasionally use these violent expressions. "I wish people would leave me alone. If they only knew how I hated this sort of thing, I am sure they would never bother me."

Here the Hon'ble Adolphus commenced reading from a slip of paper :—"Founded in 1881 as the School of Elementary Knowledge, Mr. Balderdash, Head Master, on Rs. 400. Created in 1886 the Institute of Knowledge, Mr. Balderdash, Superintendent, on Rs. 600. Inaugurated in 1881 as the College of Knowledge, Mr. Balderdash, Principal, on Rs. 800. Reorganised in 1895 as the College of Universal Knowledge, Mr. Balderdash, Principal, on

Rs. 1,000. Mr. Balderdash will soon complete fifteen years service." Let it not be imagined that the A.D.C. had investigated the subject for himself. The slip, which supplied the information, had been sent to the Private Secretary's Office the same morning by Mr. Balderdash and had thence found its way also a few minutes previously into the Hon'ble Adolphus' hands.

Even this interesting intelligence could not rouse His Excellency, for he said with an air of accumulated boredom, "I don't know anything about the College of Universal Knowledge or its Principal and care less. I wish these fellows would leave me alone. I suppose this is one of the penalties of being Governor."

"By the way," added His Excellency, suddenly assuming a lively tone, "have you heard anything more about that tiger which was wounded by Jones last Saturday?" And an animated conversation about tiger shooting took place, which was only terminated by the arrival of the carriage at the main entrance of the College of Universal Knowledge. Here His Excellency was received by Mr. Balderdash and the members of the staff and conducted to the *daïs,* from which eminence he could survey the assembled audience. The first ten rows of chairs were empty, the few members of the local "upper crust" who came being insufficient to fill the seats on the *daïs.* The body of the hall was one mass of turbans, these being the headgear of the male friends and relations of the students, while the students themselves congregated in a silent mass at the end of the hall. His Excellency having taken the chair, the Principal commenced to read extracts from his annual report:—"The numbers fell from 158 to 106, but this was a distinct advantage as it allowed more individual attention to be paid to the students, especially on the practical side, and moreover it clearly showed that the final examination was now of such a character that none but the best class of men had any chance of success and therefore none but this class joined the College. In Division I, the percentage of passes rose from 31·172 to 31·343. This was most creditable to the teachers concerned and showed that they benefited by the close supervision exercised over them by the Principal. In Division II, the percentage of passes fell from 45·163 to 22·514. This indicated that the examination had been made more difficult, a circumstance which would raise it in the public estimation," and so on. The hostel, a sort of third-rate Brahman eating-house estab-

lished in the vicinity of the College, had a whole paragraph to itself, while the doings of the Athletic Club (subscription, 2 annas a month) loomed remarkably large.

His Excellency next distributed the prizes. The happy recipients approached the *daïs* as if they were thoroughly ashamed of themselves, snatched the prizes from the gubernatorial hand and retreated with much precipitation to the remote region whence they came. Then followed the great event of the day, namely, the Chairman's speech.

" Ladies and Gentlemen, when the worthy Principal of this great College asked me to preside on the present important occasion, I was much gratified and gladly accepted the honour. I have been much interested in tracing the history of the institution from its foundation in—in—(1881, whispered the A.D.C.,)—in 1881 until the present moment and I am convinced that the College is worthy of the solicitude I have always bestowed upon it. I have listened with much pleasure to the reading of the report and have to congratulate Mr. Scatterbosh—Balderdash, I mean—on the success of the year's work." It is needless to report the whole speech. Our readers can imagine the rest. But, how do these big wigs manage it? When one listens to their orations at prize distributions, charity bazaars and similar functions they seem fresh enough. It is only when they appear in print that one can trace a strong family resemblance. However this may be, suffice to say that His Excellency concluded his address by assuring the Principal, staff and students of his continued interest in the College of Universal Knowledge.

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That night at dinner Mr. Balderdash was jubilant. He had been congratulated by the Governor, and he could almost hear the personal allowance clinking in his pocket. He actually proposed to open a bottle of champagne, but this suggestion was promptly negatived by Mrs. Balderdash. She, poor thing ! was sad, for her social scores had not been paid off and, consequently, it was necessary, in accordance with martial usage, to vent her wrath on her husband. " But, my dear," pleaded Mr. Balderdash, " they can't refuse me the personal allowance after that." " Bother the personal allowance," retorted the angry wife, and she added a good many other things, which possibly had better be left unrecorded.

Mr. Balderdash, whose experience of matrimonial squalls was considerable, sought refuge in silent congratulation.

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About a month after the great event Mr. Balderdash was the recipient of the following Order :—" Government cannot accept Mr. Balderdash's estimate of his services and therefore regrets that the grant of the personal allowance of Rs. 100 to him cannot be sanctioned. He is further warned that, unless he can show better results next year, the question of compulsorily retiring him from the service must arise."

MUHAMMADAN EDUCATION IN MADRAS.

One cannot be intimately associated for six years with the working of a school solely devoted to the education of youths of the Muhammadan community without learning something of the habits, aims and aspirations of one of the most important races of this peninsula. The very existence of the Madrasa-i-Auzam is an eloquent testimony to the importance attached to education by the noble representatives of the conquerors of the Carnatic, and the direction in which it took practical effect.

For several years past, the Government of Madras has followed up the policy inaugurated by Lord Hobart who recognised the backward state into which the Muhammadan community had fallen. He first saw the danger of allowing the intellectual life of a most deserving class to be stamped out by the crowding in of a race of intellectual giants; the very small percentage of Mussalmans who were taking part in the administration of the State attracted his notice; his patronage introduced the first few Muhammadans into the higher branches of the public service; to him the community is indebted for the only school, it is believed, in South India, in which female education is imparted; and above all, his practical sympathy awoke them from their slough of despond. From time to time these efforts to give the class a helping hand have been more pronounced, but there is lacking that continuous and earnest effort which alone will be of any practical use.

My work with the Muhammadans has been confined to a special rather than a general training. As the Science Assistant of the school, I am connected with one phase of their intellectual training. What I have done in this direction and how the pupils have responded to my efforts will pretty well illustrate the general character of the average

Muhammadan school-boy. One would have thought that the skill that turns out thousands of the best embroiderers of India, the proverbial aptitude of the Muhammadan for medicine, and the facility with which this class picks up industrial vocations would have made the teaching of Physics and Chemistry a genial occupation, but it has not been the easy task I anticipated for myself.

Owing to the very limited practical command of English possessed by our younger boys, the only course left open to me was *to use the vernacular of the boys*, to teach them first the facts and principles of science in their own language, and then to give them the ability to put the matter acquired into appropriate English. For this purpose, I published a primer for use in the Lower Secondary School in accordance with the syllabus laid down in the Madras Educational Rules and illustrated it with numerous diagrams. It supplied a want that was admitted by the Director of Public Instruction, who remarked that, in the teaching of elementary science, no attempt was being made to cultivate habits of observation and reflection and attributed it mainly to the fact that it was taught through the medium of English. But, in the preparation of the work above referred to, use had to be made of Arabic words to express technical terms and the imperfect knowledge or rather ignorance of Arabic has resulted in the boys not deriving as much advantage as they might, and the object intended by the publication of the work is partially defeated. In the IVth Form, a systematic study of Physics and Chemistry is begun without any text-book, and in the Vth and VIth Forms Balfour Stewart's "Primer of Physics" and Roscoe's "Primer of Chemistry" is gone through carefully with every experiment shown. What is more, I make the boys do some of the experiments themselves, giving them as much practical work as possible. With all this, our boys fail in science and it is disheartening to find, after toiling for a whole year, that one's labour is lost.

The failure of our students in the public examinations are therefore due to (1) inadequate knowledge of English (2) ignorance of Arabic (3) want of perseverance.

Under these circumstances, I may be pardoned for thinking that the education of Muhammadans is a problem that should more earnestly engage the attention of those responsible for the well-being of the State. As the community has thus sunk to a low level, it becomes the political duty of a benign Government to elevate the race so that it may take its proper stand among the peoples of this vast empire.

I accuse the Muhammadans of apathy and inaction in the matter of education for not having made full use of the schools and colleges intended for them, and it becomes all the more regrettable when we

find in the pages of history that the present state of affairs is not in harmony with their best traditions. In Europe, during the Middle Ages, the flame of science was kept alive in many countries where but for them it would have almost died out; and here in India, they have shewn us that in one of the highest arts which is cultivated by man—the art of Architecture, they have reached a state of perfection unequalled by few nations. Such being the history of a glorious past, it behoves the leading members of the community to adopt a change of policy and I am glad to note signs of the community waking up from this apathy and indifference. I should be very sorry if, in thus drawing attention to the defects of the community, I am accused of a want of sympathy for them.

It is not quite certain how far the present evils are attributable to the belief that a knowledge of the Western sciences would undermine Islam and would destroy the existing structure of Moslem society; but there is no denying the fact that the spiritual guides of the people, the Moulvies, are to some extent responsible for the existing state of affairs. They hold in their hands a great power for good, but have made scant or ill use of it. They are under the impression that instruction in schools, particularly Mission schools, impairs the belief of boys in the tenets of their own religion. And the strangeness of the belief becomes all the more apparent when we remember that the founder of Islam passed himself a panegyric upon knowledge. "Instruct in knowledge," did he not say? "because he who instructs fears God; who speaks of it praises the Lord; who disputes about it engages in holy warfare; who seeks it adores God; who spreads it dispenses alms to the ignorant, and who possesses it attains the veneration and goodwill of all." It is time therefore that religious teachers did see that we should not and cannot dissociate religion from science or literature or art.

In dealing with the question of Muhammadan needs, I will not dwell upon the education of females, for that may well be left alone till the men themselves are sufficiently educated, although one should like to see the education of the sexes advance *pari passu*. My remarks will be confined to some of the chief drawbacks to the progress of higher education of Muhammadan youths in this Presidency and their remedies.

(i.) In the Public Instruction report for 1895, I find that out of 56,200 pupils or 46 per cent of the population under instruction as many as 54,206 did not go beyond the stage of primary education. While it is a cause for much satisfaction to note that primary education has been steadily improving, especially since the appointment of separate Muhammadan sub-assistant inspectors for each circle, it is greatly to be deplored that secondary and collegiate education is so little appreciated that only

nine students passed the F.A. examination of 1895. What are the causes at work? The Hon'ble Dr. Duncan has observed that the Muhammadan yields to the Hindu in nothing except perseverance and this want of perseverance will be found to be partly the effect of a cause over which the boy or the parent has little control and that is poverty. There are numerous instances of Mussalman fathers who send their children to school, but who are obliged to withdraw them before they acquire any useful knowledge, simply because the growing wants of the family prevent them from continuing the education of their sons. The little help that a boy is able to bring in enables him and his parents to exist, but it prevents the latter from appreciating English education.

While such is the case, one cannot help expressing surprise at the utter want of sympathy of the richer members of the same community and creed in the struggles of their less fortunate brethren. Unless they become a little more self-sacrificing and help their co-religionists, others will not readily help them. Often have subscription-lists been sent round and appeals been made to the wealthy members to found scholarships to help poor deserving boy, but in vain. There ought to be at least 4 scholarships for Muhammadans in each class of a high school which should be tenable in the college department and a few thousands invested would suffice. Government has done and is doing a great deal for the community. They enjoy privileges which are denied to others. Missionary bodies spend large sums of money in this direction and will the merchants and landowners of the community hold aloof in the matter of education, which is the only panacea for the present evils of the community? In this connection, I would hold up the Madrasa Reading Club as an example. It spends its surplus money to pay the fees of the sons of those whose means are so limited as to render them unable to pay for the education of their children.

(ii.) Another great drawback to the progress of higher education among Muhammadans is the system in which the religious instruction of the boys is carried out. It is done in such a slipshod fashion that it is allowed to extend over a term of 10 years and a boy is ashamed to continue his secular studies to a sufficiently high standard at an advanced age. But there are fewer instances of such specimens, and when parents learn to combine religious with secular education, our High Schools will be fuller. Is it not possible to devote 2 or 3hours a week to religious knowledge? In institutions where there are no Moulvies, outside help which will be most readily given may be obtained, and should the curriculum of a school not permit of a period being devoted daily to religious instruction, such instruction may be given out of school hours. Govern-

ment some time ago invited the Anjuman to consider this point and it remains for them to deal with the question.

(iii.) The neglect of Arabic, as I have remarked already, is another factor that accounts for the present low condition of Muhammadan education. The teaching of Arabic must be taken up earnestly. At first, it may be started in the lower classes and when a foundation has been laid, boys will select the language as an optional one in their University course. In the days of the Nabob of the Carnatic, Arabic was taught systematically in the Madrasa and why is the same thing impracticable now? The various sciences and arts cultivated in former times are chiefly in the Arabic language. Nor can the Western sciences and arts be brought home to the mind of the juvenile student in his own mother-tongue without a knowledge of technical terms to be found in Arabic alone.

And this plan of teaching the facts and principles of science in the vernacular of the boys has all along been advocated and to a great extent carried into effect by that great pioneer of Muhammadan education in Northern India, Sir Syed Ahmad Khan, and the great progress made by Muhammadans in the north is attributable to this. The study of Arabic is no less educative than useful. It forms a basis for that mental discipline to be scarcely found outside the pale of the classical languages.

(iv.) Again, the absence of Hindustani Munshees in Mofussil High Schools acts as another deterrent. The teachers are either Europeans, Eurasians or Hindus and there is no connecting link between parents and teachers for the parents have had very little of English education themselves. A Hindustani Munshee would probably be the best solution. Parents can ascertain the progress made by their children, watch it and improve it with the help of the Munshee's suggestions. This point was brought to the notice of H.E. the Governor who promised a full consideration of the matter. In institutions like the Harris' School and the Government Madrasa-i-auzam, it is indispensable that the Headmaster should have a good knowledge of the vernacular, for it would not only help him materially in teaching the boys, but it would also enable him to grant interviews to Muhammadan parents, to scrutinise letters and to be personally acquainted with the grievances of boys. He should also try to get the parents to take an interest in their sons' welfare by sending a monthly progress report in the vernacular to each parent. These institutions will then become worthy of the confidence of the Moslem public.

(v.) I hear that the present mode of selecting Hindustani text-books

operates against parents being anxious about sending their sons to school. Some unknown and obscure vernacular text-book is chosen, when there are splendid Hindustani, Persian and Arabic secular works written in every kind of style by Muhammadan saints and priests in whom the belief of Muhammadan parents can never be shaken. Such standard works as the *Gulistan* and *Bostan* are thrown aside and it is but natural that Muhammadan parents should fight shy of books published by modern authors.

(vi.) There is no doubt that before we can look for any great improvement in the education of Muhammadan youths, we must begin to educate the parent. He has no idea of regularity or punctuality; he thinks nothing of keeping his boy away for a month for a marriage ceremony and the boy thinks nothing of coming late or taking a half-holiday because of an invitation to a friend's house. The Muhammadan parent pampers his child when young to a great extent and is unable to pull in the reins even when he wishes it. The child knows that he is dealing with a weak parental authority and dreading the discipline of the school refuses to attend. There have not been a few instances of such cases that have come under my notice and most promising lads have left us. It is next to useless to remonstrate with parents. They look to masters for help. I, therefore, hold to the opinion that the establishment of a boarding-school would accomplish much for the community. The Muhammadan youth must be removed from his home influence and be placed in an institution where he may be trained to good habits. In the case of those parents like the Jaghidar of Avalconda, who live in the mofussil and send their boys to Madras for their education, such an institution would be an invaluable blessing. But it must be under a capable head for otherwise the remedy would be worse than the disease.

Such are my views on the subject of Muhammadan education and if critics who differ will formulate their views, it will sufficiently repay the writer of the article should it lead to discussion and result in a keener perception of Muhammadan needs.

J. W. COOMBES.

INDIAN STUDENTS AT OXFORD.

Sir William Markby's Speech.

It has been my duty and also my pleasure to have been brought more or less into contact with nearly all the Native Indian students who have come up to Oxford during the last fifteen years. Now I wish it to be understood that, although I have to speak of some defects, I have not the least intention of bringing any sort of charge against this body of students. Nothing has been to me more striking than their general good conduct and diligence. When I consider the very peculiar position in which they find themselves, separated by an immense distance from all their relatives and friends, thrown suddenly among a set of young men of their own age, who have had other associations and other training, and exposed to entirely new temptations, we can only feel surprised that the students from India behave so well. And in saying this, I am not only giving my own opinion, but what I believe to be the general opinion of those who have had most to do with them at Oxford. It is, however, impossible to shut our eyes to the fact that there are some very sad failures. There are also a larger number who can hardly be said to have failed altogether, but who yet waste their time and their money, and get very little good at the University; and a larger number still who, although they gain something, might, I think, by better management, gain a great deal more. We are therefore, I think, justified in endeavouring to consider how the position of these young men could be improved, and it is with this object I am now about, for a few moments, to make such observations to you as my experience has suggested.

Now we must remember that, at such a University as Oxford, it is almost a necessity that the discipline should be exceedingly light. I might say that it is one of the objects of the College system to emancipate a young man from the discipline of school, and to prepare him for the independence of his after-life. The undergraduate, therefore, is left very much to himself. But behind the College there is always, with Englishmen, the authority of the parent. If a lad is not getting on well at College, the parent can always be appealed to; and if it is found that, after all, College life does not suit him, and that he is not likely to get on well there, the parent will remove him and place him under conditions more suitable to his character. But, in the case of natives of India, such a combination of authority is wholly wanting. The parent cannot be communicated with, and there is no person to take the parent's place. The only resource of the College, if a young Indian is not going

on satisfactorily, is to send him away, which, in his case, is sending him to almost certain destruction.

There is also another difficulty, which always occurs with natives of India coming to Oxford for their education. As the University terms of residence cover only about half the year, there is always a very long period which has to be spent away from Oxford. I sometimes ask natives of India where they are going to spend their vacations, and very often they seem to me not to have the least idea I am afraid that they do not always spend them very well.

Then, there is another point in which a native of India is at a very great disadvantage. He very often arrives in England about the month of September, and takes up his residence in Oxford in October. There at once, without anyone to guide him, without any previous acquaintance with English customs, without any experience of English society he falls into the company of a number of young men of his own age. Now whether this is a good or a bad thing for him depends entirely upon whether those with whom he associates, and those whose example he follows, are, to use a familiar expression, the "right sort," and of this it is very difficult for a native of India to judge. He hardly knows what companions to choose, what to follow and what to avoid; and, in reality, he is very much at the mercy of those who choose to associate with him. Of course he is afraid of being laughed at, and he dreads giving offence, and there is no one to whom he can have recourse to, to give him advice, or who will have warned him beforehand of the dangers which he will be exposed.

Again, the native of India, on his first arrival, has generally very little idea of how he ought to spend his money. He very often buys the most useless things, and omits to buy things which are really necessary. He is also quite ignorant of what style of living he ought to adopt, and is naturally also ignorant of what he ought to pay for the things he really requires. Here, again, he is at a great disadvantage for want of a responsible adviser.

Now I have to deal with another difficulty with which the native of India has to contend. In a very large number of cases he comes to England without any proper preparation for the course of study which he will have to pursue. For example, it is necessary that every one who pursues a complete course of study at Oxford should know at least two classical languages—one of these may be an Oriental language—and the two languages most suitable for a native of India are Latin and Sanscrit. They never know any Latin; they sometimes know a little, but generally very little Sanscrit. Consequently, they have to spend their six months in the study of two languages, of which they

only gain a very imperfect knowledge. In all but a very few cases, the study of these two languages is dropped as soon as they have passed their first examination; so that the first six months of their stay in England is practically wasted, and they are only then at the point at which they ought to have been before they left India. Further than this, they do not seem to me to have considered at all, before leaving India, what their work is to be in the University. It looks to me very much as if they had only made up their minds to come to England a few weeks before starting. Consequently when they get here, they waste a considerable time in seeking advice, and making up their minds as to what they are to do. They have a vague idea that they would like to get into the Indian Civil Service, and failing that, be called to the Bar; but how to arrive at the one or the other they generally have not the smallest idea, nor are they aware of the extreme difficulty of combining both. Long before arriving here, a young man ought to have made up his mind as to the exact course of study he intends to pursue, and to have spent two or three years in preparation for it.

These are, I think, the principal causes why a residence at the University is not as satisfactory for Indian students as it ought to be, and which we ought to endeavour to remove. I cannot doubt that a good deal could be done in this direction by this Association. Indeed a good deal has been done already in individual cases, mainly through the kindness and energy of Miss Manning. The Society has also published a very useful "Handbook of Information for Indian Students," which gives all the information that can be given by a book. But what is wanted is a living person who can deal fully with individual cases, can take into consideration individual aptitudes, and allow for individual deficiencies. We want advice and control.

I will deal first with the difficulty which I have mentioned last—namely, the want of preparation in India. The importance of this preparation ought to be impressed upon all in India who wish to send their sons to England, and there ought to be some means by which those who desire it can ascertain what the nature of that preparation should be, and what courses of study should be adopted in England. Take, for example, the competition for the Indian Civil Service. Those who are intended for that competition should select early, under proper advice, the line of study which they intend to adopt, should ascertain what portion of it can be pursued in India, and what can be best reserved for Oxford. For this purpose, some qualified person or persons must be available for information and advice, and it ought not to be difficult to find in India persons so qualified, and to let it be known that they are ready to give their assistance.

With regard to the other difficulties I have mentioned, they can all be met in one way, and only one way. Every native of India coming to England for study at the University (and I should not be surprised if this applies to those who study elsewhere) should be placed under the care of some one person who will stand to him *in loco parentis*. It is very desirable that he should spend some few weeks with this person before entering the University, so as to gain a little knowledge of English ways, and this person should always be available for communication with the college authorities. He should be prepared in the vacation either to receive the young man into his own family or choose his residence for him. He should have authority in the last resort to remove the young man from the University, and either to place him elsewhere or send him back to India: and above all, it is necessary that in money affairs this person should have absolute control, and that no money should be received by the young man except what passes through his hands.

The difficulty of finding suitable persons to undertake these duties is no doubt great. But suitable persons could, I think, be found, and this Association could be of the greatest use in finding out and recommending such persons. Indeed, in an appendix to the "Handbook of Information," to which I have referred, an offer is made by a committee of the Association to do this very thing, and I do not understand why Indian parents do not more frequently avail themselves of the offer. Probably it is because of the expense, for I cannot deny that the course I propose will increase the already heavy expenses of sending a lad to England. Gratuitous advice is not sufficient for the purpose. The trouble involved is considerable, and the responsibility is heavy. The number of those requiring assistance is large, and this assistance must be available at the very moment it is required. Except in rare instances, it can only be obtained from a person specially retained for the purpose.

A question which I am often asked, and which, perhaps, you may feel inclined to ask, is whether it is desirable for natives of India to come to the University at all. This is a question which is very difficult to answer. It can only be fully answered by discovering what becomes of these young men on their return to India. As to this I have very little information. Some, no doubt, distinguish themselves. One instance has been brought to my notice this morning by our friend, Miss Manning. Professor J. C. Bose M.A., of Cambridge, and now of the Presidency College, Calcutta, has lately been engaged in making some important physical researches, which have received the approbation of the highest scientific authorities, including, I believe, Lord Kelvin himself.

I have no doubt that Professor Bose is only at the beginning of a very distinguished career. But we must remember that not a few natives of India have distinguished themselves who have never been in England. Amongst many others, I may mention one with whom I was intimately acquainted—Sir Romesh Chunder Mitter—who at one time acted in the highest judicial office in India—namely as Chief Justice of Bengal. But what we want to know is how those who come to England compare generally with those who are educated wholly in India. As to this I cannot speak confidently; but judging from my own experience, I should be inclined to say this: with such precautions as I have suggested, I think it would be safe, and also advantageous for an Indian parent to send his son to Oxford; but without such precautions, I am afraid the risk is too great, and the prospect of advantage too small.

THE MADRAS TEACHERS' GUILD.

An ordinary meeting of the Madras Teachers' Guild was held on the 23rd September 1896 at the Anderson Memorial Hall, at 5-45, in the evening. There was a fair attendance of both male and female teachers. The usual preliminary meeting was presided over by the Rev. J. Cooling. The minutes of the previous meeting were read and confirmed. Fourteen names were then read out as applicants for membership, and all of them were admitted as members. The following announcements were then made by the Rev. F. W. Kellett: that it had been decided by the council that a visit to the Perambore Workshops be paid on Saturday, the 10th October; that an Educational Conference for all Educationists in the Presidency be held in Madras, to sit on the 21st and 22nd December next; that the committees on the Provident Fund and on the Branch organization had been doing their legitimate work but they had nothing to report; and that a Registration committee consisting of Messrs. Cooling and Stone had been sitting to consider whether the Guild could enter into a Corporation. Three more names were then added to the already existing Provident Fund Committee:—Messrs. T. K. Hanumantha Row, Lakshmi Narasu and Santhana Rama Iyengar. It was also carried unanimously to give up subscribing for *Notes and Queries*, and instead subscribe for the *American Educational Review* and the *London Punch*.

The business of the Council being over, the Rev. J. Russell was voted to the chair. The Rev. J. Cooling read an interesting paper on "Government Grants-in-aid." It was followed by an enthusiastic discussion

in which Messrs. Kellett, R. S. Lepper, V. S. Srinivasa Sastri, and Santhana Rama Iyengar took part. The Chairman, in a short and interesting speech, congratulated Mr. Cooling for the clear and instructive lecture. A vote of thanks to the chairman and the lecturer by Mr. P. Lakshmi Narasu terminated the meeting. Before the gathering dispersed, it was decided that the question about the reduction of grants should be brought up before the Council and steps should be taken, if necessary, to memorialise the Director on the point.

Visit to the Perambore Workshops.

At the invitation of C. E. Phipps Esq., the members of the Guild paid a visit to the Railway Workshops at Perambur on the morning of the 10th October; Mr. Phipps made a few explanatory remarks as to the work done in the " Shops, " and the visitors were then conducted over them by himself and by Mr. Stanley. The Engine shops were first visited, then the lathe shop, then the foundry, the blacksmith's shops, the saw mills, and finally the car-shops. The members were also permitted an inspection of the latest saloon carriage built for His Excellency the Governor. They were very much interested in all they saw, and especially impressed with the magnificence of the foundry, and with the machinery used in the lathe shop. The party returned to Madras by a 'Special' leaving Perambur at 10-30. The most hearty thanks of the Guild are due to Mr. Phipps for the opportunity so kindly afforded to its members of spending a very pleasant and profitable morning.

Teachers' Registry.

The following desire appointments :—

(1) A certificated trained F.A.

(2) A B. A., L. T., (Government Service.)

(3) A Science B.A.

(4) An untrained certificated F.A. (language) B.A.

Notice of the following vacancies has been sent to the Registry.

(1) F.A. Master in a Mofussil High School.

(2) F.A. Master in a Mofussil A.V. School.

(3) A married protestant F.A. Master (Madras)

(4) A Christian L.T. Madras. Applications from Teachers wanting appointments, or managers wanting teachers should be addressed to

REV. F. W. KELLETT,

Royapettah, Madras.

Applications for membership should be addressed to

S. VASUDEVACHARIAR,

Wesleyan College, Royapettah, Madras.

EDUCATIONAL NOTES.

Sir John Gorst declares that the Home Government have washed their hands of higher education and will, in future, attend to the more congenial task of aiding necessitous Church Schools. The *Journal of Education* (London) advises teachers to agitate till the Government carry out by legislation the recommendations of the Royal Commission

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It is a most significant sign of the times that teachers at home are becoming more and more conscious of their own defects and ignorance and anxious to listen to professional experts. Hence, during the Summer Meeting at Cambridge in August last, the lectures on education were the most popular of the four separate groups of studies which formed the curriculum. Not only the brighter luminaries like Sir Joshua Fitch, Oscar Browning and Joseph Landon (who delivered only one lecture) but even the lesser lights were listened to by nearly half of the whole body of students. There were students and sightseers from seven or eight foreign countries.

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We have it on the authority of the *Journal of Education* (London) that elementary teachers are paid higher salaries than secondary, and that the former look down upon the latter as "ignorant bunglers" wasting their pupils' time and retarding the progress of education. Thereby hangs a tale. The secondary teachers should qualify themselves if they would deserve higher salaries.

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The *Journal of Education* (London) views with disfavour the action of the Hon'ble Dr. Duncan in getting the local Government to approve of his scheme of appointing village school-masters as post-masters. It argues that the teacher is worthy of his hire, that is, of a wage which will enable him to live without impairing his efficiency. Moreover, the tendency of the times is to free the teacher from extra educational duties. It is, therefore, a bad policy to say to the teachers: "You must sort the letters, or starve."

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The following strange procedure is reported in the *Journal of Education* (Boston):—Professor Peckham, a scholar, a brilliant biologist and an author of repute has resigned his appointment of Superintendent of Schools, Milwankee, under extraordinary circumstances. He was drawing $4,000 per annum, a salary big enough to attract many a well-educated man. Admirably fitted by education, natural aptitude and love

of his profession for the office of City Superintendent, and without any charge of incompetency or neglect of duty, he resigns his office and accepts a subordinate position on half the former emoluments. The fact is, as the report goes, he cares more for science than for salary and gladly goes back to the laboratory. He is said to have made a national reputation on the psychology of the spider, but the psychology of the school board was too much for him. How many such can this land of regrets boast of ?

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In America, as in England, the conviction in the minds of the public is growing stronger day by day that secondary teachers ought to go through professional training for their work. This conviction is due to higher ideas of the function of education, which are becoming popular. In this task of training the high school teacher, Madras is far ahead of other parts of India, of England and of America.

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The following facts will be of interest to those interested in pedagogy.

The first advocate of Science ... ... RABELAIS.

The first educationist who insisted on good behaviour ... ... ERASMUS.

The first advocate of Object-Teaching ... ... RABELAIS.

The first educationist who insisted on the teaching of 'Things before Words'... ... ... MONTAIGNE.

Next came Comenius, then Rousseau and some Modern educationists.

The first evangelist of Modern Pedagogy ... COMENIUS.

The second do do ... ... PESTALOZZI.

The most arduous worker in the cause of Elementary Education ... ... LUTHER.

The father of the Intuitive Method ... ... COMENIUS.

The first work containing the practical application of the Intuitive Method ... ... *Orbis Pictus.*

The first advocate of the doctrine of 'Learning a process of discovery' ... ... COMENIUS.

The second do do ... ... CONDILLAC.

The third do do ... ... HERBERT SPENCER.

The man who anticipated the Monitorial System ... COMENIUS.

The Pansophists (in order)—Rabelais, Comenius, Bentham and Herbert Spencer.

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The prize of 5,000 francs offered by the Paris Observatory for the

b est treatise on Comets was won by Miss Khempke, a native of California.

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One of the candidates for the Degree of Doctor of Philosophy at Jena was 77 years old, and it is interesting to know that he passed the examination successfully.

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At the request of some Lady Superintendents of Girls' Schools, the examination for Vidyasagara Scholarships has been postponed from September to the end of October.

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At the Rangoon Teachers' Association meeting held on the 24th September 1896 with Rev. J. N. Chushing, Principal, Baptist Mission College, Rangoon, in the chair, a very interesting and instructive paper was read by Mr. N. Venkata Subbiah, Head-Master of the Madooray Pillai's High School Rangoon on "Short-hand, its origin and its advantages."

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Cambridge Summer Meeting.—The serious work of the meeting—that is, the full courses of lectures and the laboratory work—began on August 4th and continued till the 22nd. All the teaching was grouped round evolution as a central idea, whether in history, literature, or natural science. The influence of Greece and Rome on modern life and thought was traced by such specialists as Dr. Waldstein, Dr. Verrall, Miss Jane Harrison, and others ; while in modern history the growth of the national spirit in Italy and Germany was portrayed. The chief formative influences in English poetry were considered under the three heads of the Anglo-Saxon, Celtic, and Italian spirit, while the perfected result in Shakespeare was also dealt with. On Wednesdays and Saturdays the regular courses were stopped, and various single lectures were given, as also in the evening ; and on these occasions students had the privilege of listening to many scholars of note. For the science students a series of demonstrations in botany was arranged, followed up by private study ; altogether five hours a day were devoted to this subject, while other courses were given in anthropology and some problems of species.

But perhaps the most novel and useful part of the meeting, which attracted nearly two hundred English and foreign teachers, were the lectures on education. Some were on individual teachers, some on different systems. A most interesting course, accompanied by model lessons, was given by Mr. Holman, H. M. I., on the application of educational principles ; while the teacher's aim and personal influence were dealt with by Dr. Findlay. Dr. Warner gave most useful lectures and demonstrations concerning the observation of children, based on an exami-

nation of 100,000 children in schools up and down the country; and great enthusiasm was aroused by an all-too-short course of three lectures from Prof. Rein, of Jena, one of the great authorities on pedagogy, full of warm sympathy and keen insight, and so clearly delivered as to be understood by any who had a fair knowledge of German.

The afternoons were pleasantly varied by visits to various colleges, where competent guides showed the sights, and the students were hospitably entertained to tea. More distant excursions were arranged to St. Ives, Ely, Girton, and down the river, in search of geological and botanical specimens. A garden party was given in the charming gardens of Clare College, Miss Hughes entertained the students on two occasions at the Teachers' College, while many smaller parties were given by Cambridge residents and by the visitors among themselves. The meeting closed on the 22nd with a garden party given by the Vice-Chancellor in the gardens of Sidney Sussex College, where, in his unavoidable absence, the students were addressed in kindly words of fare well by the Master of Christ's and votes of thanks were enthusiastically passed. The students also expressed their gratitude in a more practical form. The first to set the fashion were the foreign visitors, who collected £10, which was presented to Dr. Roberts by Professor Adams of Baltimore, who in a felicitous little speech begged that it might be awarded at Dr. Roberts's direction to an English student at a future summer meeting, under the name of an International Scholarship. The English students were not to be beaten, so they collected a sum of £14 and those who had been received into the Teachers' College collected another £5. There was also "unofficial lectures" given on religious subjects by the three Divinity Professors, and two most able addresses on "Labour Co-partnership" were delivered by Mr. Vivian. One Sunday evening the Dean of Ely and Canon Stanton presided at a meeting to explain the aims and methods of the Christian Social Union, which principles were more fully illustrated by the excellent spirit of general kindness and friendly intercourse which prevailed in a marked degree among the 470 men and women who gathered under the shadow of the university from the mine, the factory, the counting-house, the shop, the country village, and the fashionable watering place, as well as from seven foreign countries, in pursuit of knowledge and search after truth. —(*The Queen*).

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Mr. M. B. Cotsworth, of Holgate, York, has devised an exceedingly ingenious method of enabling all who are concerned with figures to make their calculations with a rapidity only equalled by the various "lightning calculators" who from time to time astonish the world. His

System is contained in a large volume published by Messrs. Crosby Lockwood and Son. Mr. Cotsworth has discovered that, by dividing the figures into groups according to certain numbers which are common to each, it is possible to get into a book of reasonable size the results of every number from one to 1,000 multiplied by every other number. He has arranged these by a perfectly simple method, so that any required result can be at once found by anyone without the slightest difficulty. Of course, as all the multiplications are given, the converse of them gives all the divisions. If the figures exceed 1,000, it is only necessary to deal with them in groups of threes; and the book will, therefore, serve for calculations up to any amount. The result is that any problem involving multiplication or division can be worked out by means of the book almost as soon as it can be set down on paper. The uses to which the system can be applied cover the whole scope of mathematics; Mr. Cotsworth shows how to deal with money, weights and measures with their interchange with foreign standards, the calculation of percentages, insurances, railway rates, percentages on investments, everything, in fact, into which multiplication and division enter. It differs in its simplicity from a computing scale, which requires some skill in the worker.

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Professor Max Müller is publishing a new work in two volumes called "Contribution to the Science of Mythology." The book is now in the press and will be ready early next year.

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In the School of Modern Oriental studies at the Imperial Institute, the successful candidates for the Ouseley scholarships for 1896 were:—Burmese—Lee Ah Yain; Arabic—G. Sarmar; Marathi—V. R. Pandit. Three scholarships of the annual value of 50£, tenable for 2 years will be awarded in July next for proficiency in Tamil, Persian and Chinese, should qualified candidates apply for the same. In the event of there being no candidates for any of these languages, Guzarathi will be substituted. The maximum and the minimum limits of age for competitors are 25 and 21, respectively.

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His Highness the Nizam of Haiderabad is contemplating the opening of a Veterinary College in his State.

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The Chinese language has been added as an optional subject for the Indian Civil Service for candidates selected for employment in Burma.

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There is a proposal to erect the largest Astronomical observatory

in the world on the summit of Mount San Miguel near San Diego. The observatory is to be an international one.

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The Blind College, Powyke, is the only public school for blind boys in the British Empire. So far it has been so successful that the governing body propose to erect new and more adequate buildings, for which purpose they appeal to the public for a sum of not less than £10,000. This announcement was made on the occasion of the annual speech day and prize distribution which took place on August 4th. A report of the year's work was read by the Head Master, Rev. J. B. Nicholson, who stated that he had found blind boys fully up to the average of industry and attainment of other boys. Upwards of a hundred pupils had passed or were passing through the school, of whom about forty had taken degrees at one of the Universities, and twenty of these had taken Holy Orders. Three boys were ready to go up to the University this year, one of whom had gained the Fawcett Memorial Scholarship by open competition.

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The Queen has signified her willingness to receive the Polyglot petition, which has been signed by her women subjects in all parts of the world, praying for increased protection against the evils of the liquor traffic and the opium trade. The petition contains over 7,000,000 signatures and indorsements, and has been gathered during the last few years by the World's Christian Temperance Union.

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Mrs. J. E. Cope has been appointed secretary to the Southwark Royal Eye Hospital, which is, we believe, the only case in London of a lady occupying such a position.

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Miss Ida Meller has been appointed lady director of the English School of Journalism, whose offices are at 441A, Strand. The object of the school is to train really competent journalists in all the requirements of their profession, as scarcely one in a hundred of those who aspire to journalism is acquainted with its elementary rudiments.

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Miss May Proctor, who went recently to Norway for the purpose of taking observations on the eclipse of the sun is the daughter of the late Mr. Richard Proctor, the astronomer, who founded the journal *Knowledge*. Miss Proctor delivered a series of astronomical lectures during the voyage, which were greatly appreciated by the young ladies from various colleges who accompanied the party.

A Student's Thoughts on Newnham.—Many articles have been written on Newnham College and on collegiate life for women, but we have never read a better than that which Miss Christable Osborn contributes to the *Windsor Magazine.* It is dignified in tone, well balanced, and excellent in thought and feeling. Miss Osborn gives warm and sincere expression to the charm that student-life exercises over women of the chosen type. "As an old Newnham student," she says, "if I had to make out a case for the existence of the college, I could hardly find a stronger argument than the dream-like happiness of the two, three or four years that are spent there." "Dream-like happiness" is strong, but we may be sure Miss Osborn means it. "In what," she asks, "does this wonderful happiness consist? What is this magic glamour that surrounds life at Newnham, separating it from ordinary life in the work-a-day world?"

The absorption of the mind in study, the stimulus of great scholar-teachers, the companionship of girls of ideas and intelligence, these are the main components of student happiness. And when college days are over, there remains something that does, on the whole, make life better, for "a real and living idea of the infinity and glory of knowledge is gained." Miss Osborn has exchanged thoughts on this subject with Miss Jane Harrison (who is portrayed in her Aberdeen LL.D. dress), and from that distinguished scholar she obtains a valuable comparison of Cambridge and London University conditions. Miss Harrison gives the preference to Cambridge, where, she says, "so little notice is taken of the examination . . . . that a first-rate literary training can be gained." That there are few women so far who have gained it will not perhaps shake Miss Harrison's statement. Miss Harrison, we are glad to see, also dwells on the increase of good fellowship among women to which college life leads. Indeed, many as are the women who repeat that they cannot get on with women, we have never heard a College graduate plead guilty to this form of social failure. Miss Osborn discusses the post-graduate part of her theme judiciously, though briefly. From this side of the subject great vistas lie open to thought.

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Matron Annie M. Welshe, who manages the prison of Auburn in the State of New York, with a force of women-keepers under her, has been very successful in prison discipline, and has on record many cases of genuine reformation, although it is usually women guilty of serious crimes who are sent to her. There is only one man on the premises, the warder, James Stout, but he has nothing to do with the management. There is another prison and reformatory for women in Indiana entirely managed by women; this has also proved a success. It will be rememb-

ered that in Belgium female prisoners are superintended by the nuns of some religious order in the locality, and that the " Maison de Detention " at Doullens in the north-east of France is under the control of a Protestant Sisterhood, being kept for Protestant prisoners only.—*The Queen*.

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On Saturday, the 5th September 1896, a number of masters and mistresses from Queen's-Park Board Schools visited the British Museum, and were conducted over the building by Mr. H. Spencer, who, in addition to being on the staff of the Museum, is Chairman of the Managers of Queen's-Park Schools. The party first proceeded to the manuscript department where they examined the orginal copy of the Magna Charta, then to the Egyptian department, which contained beautiful specimens of art and sculpture, and lastly to the extensive Library in which nearly 3 million volumes of books and magazines are collected and classified.

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The largest classical institution in the world is the University of Berlin, which contains nearly 8500 students.

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During the current month, the University of Durham will not only open the degree of B.A. to women, but will also throw open to competition eight scholarships and exhibitions, varying in value from £20 to £70 a year, besides various University prizes,

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INDIAN NEWS.

BENGAL.

We are glad to hear that the Metropolitan Institution has been reorganised on a new basis. The management has passed from the hands of Mr. Surendra Nath Banerjea to the Vidyasagar Institute (a committee of several prominent gentlemen of Calcutta.) The Metropolitan Institution will henceforth have no connection with Ripon College, and the Professors of the Metropolitan Institution, who had been lecturing in Ripon College have also stopped their work in Ripon College, and will henceforth devote their time to their own college exclusively. A very happy scheme has also been carried out by the new management. It may be remembered by many of our readers that the late Iswara Chandra Vidyasagar (Founder of the College) had purchased a collection of scientific apparatus, and that he was talking of opening science classes for the B.A. examination when the lamented death happened.

We learn that arrangements have been made for teaching the B. A. Course in the college from September 1st 1896. The wish of the lamented founder is now an accomplished fact, and we congratulate the first native college in Bengal upon its being able to impart a complete university education.

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For the first time in the history of competitive examinations for the Indian Civil Service, an Indian youth, named Atool Chander Chatterjee, son of an Engineer in Bengal, headed the list of successful candidates. He was a Government scholar at Cambridge.

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An examination of candidates for appointments as deputy collectors and magistrates and as sub-deputy collectors will be held in Calcutta in March next, on dates to be notified hereafter. It is at present proposed to select seven candidates for deputy collectorships and seven for sub-deputy collectorships. These will at first be appointed as probationers on a subsistence allowance of Rs. 50 and 30 a month, respectively. Four of the probationers for deputy collectorships will be appointed from the first four candidates on the list in order of merit; and three will be selected by the Lieutenant-Governor from among those who have obtained a minimum of one-third of the total marks. From the remainder of those qualified by obtaining one-third of the marks, the Lieutenant-Governor will select seven more candidates as probationers for sub-deputy collectorships.

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Dr. Russell is appointed Professor of Materia Medica of the Medical College, Calcutta.

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The Hon'ble Babu Guru Prosad Sen, M.A. B.L., is a candidate for election as a Fellow of the Calcutta University, and a circular has been issued by some of his friends in support of his candidature at the next election.

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A grant of Rs. 125 per mensem has been sanctioned by the Bengal Government with effect from the 1st April last, in aid of the Calcutta Deaf and Dumb school.

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The Jaswant College, Jodhpore has been made a first-grade college, and the B.A. classes will shortly be opened. The pay of the Principal has been raised and a Drawing class has also been added.

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The following Circular has been sent by the Director of Public Instruction to the Principals of all Government Arts Colleges in Bengal, including the Lady Principal of the Bethune College.

"In continuation of this office Circular No. 67, dated the 25th June 1895, I have the honour to enquire whether you have any changes to suggest in the supply of periodicals to your College for 1897. I beg to add that in Colleges and Collegiate schools, the cost on this account is debited to the library grant of the College, but it is proposed to ask for a separate grant for the last four periodicals named in the margin costing Rs. 14, which are supplied to zilla schools free of cost. This, if sanctioned, would reduce the charge for the College to Rs. 65-2-3."

	Rs.	A.	P.
1. Nature	29	1	3
2. Usha	12	0	0
3. Pandit...	9	1	0
4. Calcutta Review, 2nd series	15	0	0
5. The Indian Journal of Education	5	8	0
6. Calcutta University Calendar	5	0	0
7. Calcutta University Magazine	2	8	0
8. *Sakha* and Sathi ...	1	0	0
Total...	79	2	3

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The Officiating Director of Public Instruction, Bengal, Dr. C. A. Martin has issued a Circular to all the officers in the Bengal graded service inquiring whether they will accept the new Indian Educational service or the new Provincial service, or whether they will elect to continue on the graded list and obtain promotion as vacancies occur in it, subject to the rule of two-thirds pay in the case of natives of India continuing in the graded service, and subject to the condition that only those considered fit for promotion will get it.

There will be 26 Officers* on Rs. 500—50—1,000 and 1 Superintendent of the Government School of Art on Rs. 1,000 a month in the Indian Educational Service, and 113 Officers on salaries varying from Rs. 700 to Rs. 150 a month in the Provincial Service, *viz* :—

* Inclusive of the Director of Public Instruction, Assam.

2	Officers on	Rs.	700
4	do.	,,	600
6	do.	,,	500
8	do.	,,	400
12	do.	,,	300
22	do.	,,	250
26	do.	,,	200
33	do.	,,	150

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In supersession of previous orders on the subject, the Director of Public Instruction has laid down as a general rule that if the holder of an upper or lower primary scholarship succeeds in passing the next

higher examination before the expiry of the term for which the scholarship was awarded to him, he will still be entitled to draw it for the full term for which it was originally sanctioned, even though a scholarship of a higher order may be awarded to the student.

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Arrangements are being made to open a class for agricultural training in connection with the Seedpore Engineering College.

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At a meeting of the Faculty of Arts of the Senate of the Calcutta University, it was decided to introduce Bengali as an optional subject in the F.A. and B.A. examinations, just as drawing is in the Entrance examination.

BOMBAY.

It has been notified by the Bombay University authorities that a Sujna Gokulji Zala Vedant Prize for 1893 was not awarded in connection with the M.A. Examination of that year, as no Essay has been sent in on the subject prescribed for competitive essays for the prize. The Syndicate have resolved to award the prize for the best translation into English of the Aitareya Upanishad with Sankarachary's Bhashya on it. The translations should be sent in to the University Registrar, on or before the fourth Monday in September 1897.

MADRAS.

M.R.Ry. C. Subba Rau of Mysore, a retired Government official has given a donation of Rs. 10,000 for the purpose of founding scholarships with a view to induce Sanskrit scholars to receive a high English education, in order " that the narrowing influence of their purely Sanskrit education may, to a certain extent, be remedied, and they may receive the benefit of a liberal culture, without which their stores of traditional learning are not likely to be productive of useful results."

* * *

We have been requested to publish the following by *An Orientalist.*

To

The Editor, Indian Journal of Education, Madras.

SIR,

I have read the article by Mr. Vaithyanathan on the Director's scheme of an Examination for Pandits and Moulvies in your September number of the Journal, and think the writer's criticisms sound so far as

they have gone. If the Hon'ble Dr. Duncan is responsible for the details of the scheme, he will do well to consider the following questions and remarks before he sends up his scheme to Government, with the assertion that the examination is intended to be a real test of proficiency in Oriental languages:—

(1) Does he aim at a sound knowledge on the part of the Pandits and at securing the benefit of ripe scholarship for the tutorial work, or does he merely want a make-believe scheme which only needs a superficial knowledge of some two or three works in an Indian language and some scraps of information on the history of language and literature which, without a careful study of any text-book, one might scrape up from sundry sources or by dabbling in ephemeral papers?

(2) There is hardly in existence a Vernacular work on the history of any language and its literature, but there are numerous works of Tamil classic and modern poetry for one's study and examination; and the question is whether Dr. Duncan wants to examine Pandits and Moulvies in what they do NOT know or in what they DO know? If his aim is to ensure sound scholarship, is it not expedient and right to prescribe a greater variety of literary works for study and examination, instead of the absurd imitation of European University Schemes demanding a knowledge of what does not exist in the languages of the East, *viz.*, a history of language and biographies of authors about whom no reliable or definite particulars are known even to the best of modern investigators of Oriental dialects.

(3) Are the future "Pandits" likely to secure anything like respect from the public if they pass an examination in but two or three Vernacular works? Have not this fragmentary knowledge and perfunctory examination of University students proved a discreditable failure?

(4) Is it not unseemly to ask good native scholars to come up to be examined by Translators to Government whose knowledge of Oriental literature is proverbially scanty because they are practically expected to know no more than a colloqiual acquaintance with the languages they are concerned in as Translators of business papers, rules and regulations for examiners of foreigners in the rudiments of linguistic knowledge?

(5) Is there not under this Agency the possible risk of the proposed scheme being trifled with by the Munshees and Clerks under the Translators who are capable of playing a game with Questions and Marks as they are the irresponsible agents that are likely to prepare Question papers for the approval of the Translators in the first instance?

If the Translators remember little of their Vernacular classics, how can their Munshees make even a show of question papers on classic poems?

None but Oriental scholars deserve a place on the Board of Examiners in any Oriental language and literature.

(6) Is not the fee for admission to the examination beyond the means of the Pandit class ? Are these poor teachers to be denied teacherships because of the costliness of the examination that keeps them aloof? To profess a desire of encouraging Oriental scholarship is one thing, but it is quite a different thing to project a defective scheme and an incompetent agency to test it and to demand an abnormal rate of admission fee from men of small or empty purses. If the Hon'ble Dr. Duncan really intends to institute a useful examination, he must pause for a while and see what to avoid and what to add, by the light of public criticism for which you have very properly opened your pages at the right hour. If the scheme is not to be thoroughly revised and enlarged in certain important respects, to work it out would be as unprofitable as to plough the sands of the sea-shore, and it would throw back the very cause which the learned Director is anxious to promote.

* * *

Instances have come to the notice of the Director of Public Instruction of Service Registers which have been either lost or destroyed in transit or through accident and the preparation of new registers has necessarily caused considerable difficulty and in some cases has become almost impossible ; he has therefore issued the following instructions in order to obviate this difficulty and to facilitate the preparation of new registers in cases of such loss or accident.

(i) Every officer in superior service for whom a service register ought to be maintained should keep in his possession a true copy of his service register on thick paper neatly bound. This will be designated "Record of service of—."

(ii) He should enter in this record of service from time to time all the changes in his service, and these should correspond exactly with the entries in the service register lodged with the head of his office or institution.

(iii) In the month of December of each year, the head of the office or institution should compare the entries in the service registers in his custody with the entries in the record of service kept by the officers themselves and when the latter have been duly verified and found correct, they should be countersigned by the head of the office or institution in proof that entries have been checked and returned to the respective owners. Where the entries differ, the necessary corrections should be made before countersignature.

(iv) In the first working week of January each year, a return should be submitted to the Director's office in the following form by

each head of office or institution to show how far these instructions are being carried out.

Number of officers by whom copies of service registers ought to be kept.	Number of officers by whom such copies are actually kept.	Number of such copies of service registers verified by the head of the office or institution.	Remarks.
1	2	3	4

Note.—The reason for the difference between columns 1 and 2 and columns 2 and 3 should be explained in the column for remarks.

* * *

His Excellency the Governor rightly remarked in the course of his reply to the address presented by the Moplah community at Manjeri last month that the chief cause of the frequent outbreaks among the Moplahs was their backwardness in point of education. By giving these poor classes education and improving their condition, he thought that Government would have done a great deal to reduce the opportunities for such outbreaks.

* * *

The following is the full text of the speech delivered by the Hon'ble Mr. J. D. Rees at the distribution of prizes to the successful pupils of the Sirkar Girls' School, Trivandrum, and we publish it here *in extenso*, as it indicates the great progress female education is making in the enlightened model State of Travancore.

"It is particularly gratifying to me to be present at the prize-giving of this institution, of which Miss Williams had only just taken charge when I visited it last year, and to learn that in the interval it has so grown that the school house is not large enough for the girls and their friends on this occasion. Even more satisfactory than increase in strength is the diminution in the number of withdrawals. Unless the same girls prosecute their studies for a sufficiently long period, the cause of education cannot make a continued and consistent advance, and withdrawals fell from 65 to 28 per cent. of strength. The abolition of class fees during the year evidences once more the liberal financial spirit which animates the Government in the cause of female education, the

high average attendance of the elder girls shows that they love study, and the Government has under consideration the provision of a preparatory school house, and a drill court as well as music and luncheon rooms for Sudras. It is noteworthy, or would be elsewhere, that this is practically a Sudra school, and contains only 4 Brahmin girls. As is usual with educational institutions in this State, this one also is well equipped with necessary accessories and apparatus. In the public examinations some advance may be claimed, and the institution has during the year been locally classed as a College. Application is being made for its recognition as such by the central authorities in Madras. Meanwhile, Miss Williams though determined to command ultimate success with her highest class, like a prudent General, does not neglect to discount a possible immediate failure, if indeed such be possible. The relations of the Lady Principal with her male graduates, her female and her moonshee assistants, and with her pupils have been most satisfactory, and it is not because of the absence of harmony within that she presses for the extension of music classes in separate rooms without the walls. Every friend of female education must sympathise with her statement of the peculiar difficulties which attend promotion and progress in this country, and her frank avowal of some change of front is the result of actual experience of the problem. Most of us, I think, like Miss Williams, look "to the institution entirely taught by women which shall educate its own teachers, and supply English teachers for other schools" as the ideal to be attained, and few are ignorant of the difficulty experienced on the threshold in obtaining qualified and satisfactory women teachers in sufficient numbers to effectually attack the position, which is not likely in the immediate future to be carried by storm. It is a case for patient climbing for an occasional regrettable but perhaps inevitable slip.

And here I cannot help referring to a deplorable occurrence which can by no means be classed in this category, but which has naturally been loudly condemned by a vigilant and enlightened Press. It occurred of course in the Vernacular High School which is entirely distinct and separate from this institution. The Government of Travancore has publicly censured the offending officers, and that one of its servants who set the examination paper, an M. A. of the Madras University has been declared ineligible ever to examine again and has been informed that his excuses aggravate his offence. The Government has still under consideration what further measure it should take to mark its lasting displeasure of the inexplicable conduct of the officers in fault, which to use its own words "cannot but shake the confidence of the public in regard to the development of female education, a cause the safeguarding of whose best interests is to it a matter of serious concern." It is impossible

in my opinion to find any excuse for this examination paper, or to base any defence of it upon the character of descriptions which are common in Sanscrit and Malayalam literature, on the fact that the text-book from which it was prepared is one of very few works on the subject and contains translations from famous ancient and modern Hindu poets and writers. To girls is due even more reverence than to boys, and it was long ago decided that for boys the maximum of reverence is the irreducible minimum. A Text-Book Committee has already eliminated from use a great many works open to objection. Its labours are not yet complete, but when they are finished, no text-book will remain in use containing any passages to which any objection can be taken. Meanwhile no examiner can be held excused, who does not carefully pick his way about the poet's corner and avoid, as is done in examination in Europe in regard to the great classical poet's works, any passages which have the faintest flavour of impropriety or are unsuited for perusal and study by the young. The paper cannot be excused or defended. But when it is suggested that because this thing has happened, therefore the educational system is bad throughout, and that the people hesitate on that account to allow their children to attend the Government schools, it naturally occurs to a servant of the Madras Government to see how the system is regarded by his Government, and what the actual school attendance is.

It happens that for the last four years, a Dewan of long, and for a somewhat shorter period, a Resident of even longer educational experience have been in office. The late Mr. Grigg was an officer whose conception of the character of his duties here was equally conscientious and comprehensive. It was his custom to associate himself with the administrative departmental measures of the Sircar, to the fullest extent compatible with the position of one who was not the actual administrator, and His Highness the Maharajah has the cause of education no less at heart than had his distinguished predecessor on the musnud, whose writings on the subject earned the admiration of more than one English statesman. When presiding in 1893 at the prizegiving at the College, His Highness expressed his satisfaction that the Madras Government had sent here as Resident " a friend whose advice on educational matters would be of incalculable value from his extensive knowledge and practical experience of a subject which had been a loving study with him in a wider field during the greater part of his official career." It might therefore be safely inferred that the personality of Mr. Grigg would loom large in the subsequent educational policy of the State, and that he would be closely associated with future reforms and, in fact, the advance in the last 4 or 8 years have been very marked. In the first review of a Travancore Administration Report by Mr. Grigg in 1892

accordingly we find the following paragraph :—" The proportion of pupils to population is 2·4 This is rather better than the Madras Presidency where the proportion in 1891-92 was 1·50. The number of girls under instruction is 21,310, as against 20,063 last year, showing a steady progress in female education. The organisation of this branch of education demands, however much attention from the Durbar. Should this be done, provided the Durbar increases its allotments for this object as required, Travancore will soon hold an unrivalled position among the States of India as regards the education of women, because of there being few obstacles to be overcome in the way of prejudice against such education, as the people are generally favourable to it, and as the daughters of a large portion of the population may attend school to a much later age than is generally the case in other parts of India." Mr. Grigg also recommended certain specific changes which have been since made in the organisation of the Educational Department. Hence the present position of Dr. Crichton Mitchell, the zealous Educational Secretary to the Dewan. The Madras Government instanced several reasons which " confirmed the Resident's view that the Educational Agencies of the State had been doing good work and congratulated the Maharajah on steady improvement in almost all departments of the State." In 1894 Mr. Grigg again reviewed the Sirca Administration Report after having devoted no small part of his time during the year to that Department of the State in which he was specially interested and in regard to which his advice had been expressly and publicly invited by the Maharajah. I make accordingly a somewhat longer extract from his remarks :—" It is highly gratifying, " he said, " to observe that the total number of pupils under instruction formed 4·46 per cent. of the population according to the latest census, and 29·7 per cent. of the population of school-going age. The percentages in the Madras Presidency in 1892-93, were 2·06 and 13·7 respectively. There is thus no doubt that in point of numbers under instruction, not only of boys but also of girls, notably in the case of the latter, Travancore is far in advance of the Madras Presidency and of Mysore This is very creditable to the State. Education has been making steady progress and the educational activity hitherto laudably displayed has markedly increased."

The Madras Government thereon recorded the following opinion. " The steady progress in education and the educational activity displayed in the State, to which Mr. Grigg bears testimony, are proved by the figures showing the increase in schools and scholars during the last five years, by those exhibiting the extent to which female education has spread, by the percentage of the school-going population under instruc-

tion, and by the laudable efforts made by the Durbar to generally extend its educational operations. The good work carried out has justified His Highness' selection of M.R.Ry. Shungara Subbaiyer Avergal to fill the responsible office he holds." The review of 1894, though written by myself, related to the incumbency of Mr. Grigg who was in office throughout, and by whose notes and views I deemed it, immediately after his removal from the scene of his strenuous and useful labours, a pious duty to be guided. In that review, it is stated that "of the total number of pupils under instruction, 94,573 were boys and 24,473 girls, the proportion to the population of school going age calculated at 15 per cent., being 48·8 in the case of boys and 12·8 in that of girls, against 24·3 and 4·0 per cent., respectively, in Madras in 1893-94, the proportion of pupils under instruction to the total population being 4·65 and that of Madras being 2·4 per cent."

The Government of Madras recorded the opinion, "that the progress of education continued to be highly satisfactory, and that the State was greatly indebted to the Dewan for a year of vigorous and efficient administration. The review for 1895 was the work of a new Resident, Mr. Thomson, whose recent departure owing to ill-health is much regretted by all with whom he had official or social relations in this State. Mr. Thomson, after brief comment on the very creditable advance in the percentages which rose from 48 to 52 in the case of boys and from 12·8 to 15·2 in the case of girls, said, "It is gratifying after the introduction of great changes to find that results are so far satisfactory, and promise well in so many important respects. The uneasiness or dissatisfaction the new rules produced in some quarters has mostly disappeared and there is, in fact, no room to question that the reforms made have been conceived and executed in the best interests of the people and the State."

The remarks of the Madras Government on Mr. Thomson's review follow :—"The measures of reform which were alluded to in the Administration Report of 1894, and which had full effect during 1895, have apparently done much towards improving the educational agencies —both State and private—in Travancore, and fully merit the testimony borne to their usefulness by the Resident. The Durbar continues to display the same activity in educational matters as has marked the administration of recent years. It is clear that, as remarked by the Resident, the year has been one of continued good government, of prosperity to the State and of progress and improvement in many directions. The Resident bears testimony to the great personal interest taken by His Highness the Maharajah in all matters affecting the welfare of the people

as well as to the untiring zeal and devotion of the Dewan, M. R. Ry. S. Shungara Subbaiyer. His Excellency the Governor in Council congratulates His Highness the Maharajah on the results which have been achieved." I have quoted these extracts from blue-books for the benefit of those present, if there be any such in a "Model State," who do not invariably read such publications through from beginning to end, not with the object of showing that male or female education here approximates to perfection, but to demonstrate that honest effort has been appreciated by various authorities not incompetent to express opinions on the subject.

Everyone familiar with this coast and its people must feel with Miss Williams, that female education is beset with difficulties. It is obvious for instance that the same liberty, which allows females to avail themselves of the education offered, to so much larger extent than is permitted to their sisters elsewhere, may conceivably carry with it a license tending in some individual cases, though I have learnt as yet of none such, to impair confidence in a staff of female or of mixed male and female teachers. I believe no one has claimed for female education here any immunity from error and imperfection, but the special and peculiar dangers to which the infant plant is exposed have not been ignored by those who have watered it, and are anxiously watching its growth. An Educational Department with the record to which I have briefly referred cannot, however, be judged and condemned on account of one examination paper, however improper, and should not expiate the sins, however heinous of one or two offending officers, by the loss of its own reputation. No system can guarantee immunity from individual carelessness or misconduct. I have referred to the Education Reports of the last four years. That of 1896 will show that many new girls' schools have been opened, and that more are applied for by an appreciative public, that attendance in those formerly established, including that in which this unfortunate affair occurred, has largely increased, that girls' schools for backward classes are being opened in many centres, and that strenuous efforts are being made to equip girls' schools with staffs consisting of none but females. It seems to me to be my duty to the State to make these remarks just as it is the duty of its Government to deal promptly and effectively with proved misconduct on the part of any of its servants. But in like manner, proof is needed before an administration with such an educational record can be supposed to be indifferent to practices, the existence of which unchecked would wholly belie its fair reputation."

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At the request of the Teachers' College Day Committee, we publish

the following Circular sent to all the students (past and present) of the Teachers' College and the Government Normal School, inviting them to take part in the proceedings of the present year. Encouraged by the large and successful meeting of the students last year, the Committee is arranging to celebrate the Day during the current year on a larger scale.

SAIDAPET,
5th October 1896.

SIR,

I have the pleasure to send you a printed copy of the Rules of the Teachers' College Day Association, together with a copy of the Report referred to therein.

By a rough forecast, the expenses of last year's celebration were calculated to amount to about Rs. 300; but, while the receipts amounted to Rs. 450, the actual expenditure rose to Rs. 470, leaving a balance on the wrong side of Rs. 20. It is hoped that, with your hearty co-operation, we shall be better off financially this year.

Under Rules 3 and 5, the Managing Committee have framed the following scale of Fees and *minimum* Subscriptions for the current year:—

Life Members : Rupee 1 in addition to their Donation.

Ordinary Members :—

	RS.	A.	P.
Graduates	2	0	0
F.A.'s...	1	8	0
Matriculates	1	0	0

Though a minimum has been fixed, I am sure you have the best interests of the movement at heart and will, therefore, render as much pecuniary help as is convenient for you.

If you are a Life Member, you will be doing the Association real service if you can remit, at an early date, your Donation either wholly or partly to the Treasurer, Mr. N. Ramanuja Chariar, Head Clerk, Teachers' College, Saidapet.

It is quite possible that some old Students of the College might not have received any formal intimation last year of the celebration of the College Day. If you are aware of any such, I shall be thankful to you if you report their names and addresses to the Secretary.

I beg to remain, Sir,
Your most obedient Servant,
J. M. VELU PILLAI,
President.

M. RAMASWAMY IYENGAR,
Secretary.

The Principal of the Teachers' College, Saidapet, has notified that a number of trained Graduates, First-in-Arts men and Matriculates will be available for employment as teachers in January 1897, out of the present batch of students who complete their period of training in December 1896. Managers of schools who are in need of their services are requested to apply to him. He is also prepared to send to Managers qualified Gymnastic Instructors.

* * *

Government has called upon the Director of Public Instruction, the Commissioner for Government Examinations and the Syndicate of the Madras University for consideration and report as to whether the system of identifying persons by means of impressions of the tips of their fingers which has been successfully employed for several years in the Registration and Police Departments in Bengal and in Madras might not be introduced for the identification of competitors at public examinations.

* * *

The Coimbatore College whose working during the past year was reviewed by the Director of Public. Instruction last month, shows signs of steady progress in all directions. The staff was strengthened by the appointment of an assistant Sanskrit Pandit and an assistant Gymnastic Instructor; funds are being raised to improve the Library; the strength of the college classes has greatly increased; the results of the University and other public examinations were uniformly satisfactory, and lastly, the financial condition of the college which, in a great measure, testifies to the popularity of the Institution, was very good, the receipts having more than covered the total charges. We fully concur with the Director in his eulogium of the college. Its present efficient condition reflects great credit on the Principal, Mr. Mark Hunter, and his staff.

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In accordance with the orders of Government, the executive committee of the Madras Students' Hostel have resolved to address the Registrar of the Madras University asking him to convene a meeting of the Syndicate for the purpose of nominating the eight elective members of the governing body of the Hostels.

N.-W. PROVINCES.

Mr. J. A. Douglas M.A. (Oxon.) has resigned his appointment as Professor of English Literature, Agra College, and has accepted an appointment in the M. A. O. College Aligarh. Mr. T. C. Jones B. A. (London) Junior Professor, succeeds Mr. Douglas.

PUNJAB.

A slight change has been made in the constitution of the Syndicate of the Punjab University. The number of representative members has been raised from 18 to 20. The increase arises from the number elected by the science faculty being made three instead of one. The power of conferring degrees in science has been conceded to the University.

REVIEWS OF BOOKS.

THE MADRAS COLLEGE OF ENGINEERING CALENDAR FOR 1896.

This handy volume contains much and varied information connected with the College which stands pre-eminent among the institutions of Southern India as the fountain-head of technical education. The book opens with a history of the institution which is specially interesting inasmuch as it gives a clear idea of the comparative antiquity of the College and its gradual development from the petty Survey School of a century ago to its present magnificent state. The list of gentlemen who have gained diplomas as Engineers contains the names of several eminent men who either held, or are still holding, responsible appointments under Government in the upper grades of the Public Works Department. Messrs. S. Subbarayachariar, N. Ratnasabapati Pillai, T. T. Raghava Chariar, S. Gopalakrishnier, S. A. Subramanya Aiyar are specimens of the finished products of the College. It is, however, a remarkable fact that in spite of the incentives offered to the later generation of students by annually throwing open an "officer's" place to the best student of the College and in spite also of the rapid strides with which general education advances in this country, the number of diplomaed Engineers turned out by the College during recent years is less than the number that passed out of the very first batch. While six Engineers passed out in 1863, in 1895 we find only 3, and in 1894, 93 and 92, 4 each. This may appear an unsatisfactory state of things, especially when we take into consideration the enormous sum of money spent every year on the upkeep of the College. But the blame rests with the Government itself; for, while Government has guaranteed to the first man an Assistant Engineer's place with an initial salary of Rs. 250 and prospects of rising to Rs 1,000 or so after a loyal service of 15 or 20 years, the very next man of the same batch who might have been beaten by his more fortunate classmate by a few marks is not certain of even an overseer's place on Rs. 60, but has to eke out his life as a temporary overseer in some remote unhealthy corner of the Presidency or as a sub-

ordinate in the service of a Local Board, Municipal Council or a Private Company with no prospects of pension and with doubtful chances of a certain career. If, therefore, Government should only alter its policy and in addition to the existing concessions should guarantee two supervisor's places to the second and third man and three overseer's places to the next three men of each batch, there is not the least doubt that a decided improvement will come over the state of the College.

At the end of the Calendar are found Final Examination Papers set for the various classes. The University Examination Papers will be a valuable addition to the book. It is well printed and bound in white linen like the University Calendar, though somewhat larger in size.

THE BRITISH COLONIES, DEPENDENCIES AND PROTECTORATES. By George Gill, F.R.G.S.

This work on geography contains about 500 pages. The letter-press and paper are excellent. There are many good maps bearing on the respective countries and in some cases on provinces with the trade routes clearly shewn. Places of importance are in darker type or in italics. Each colony of Australia is drawn on a separate page. A copious index greatly facilitates the labour of the pupil in getting at any information. History goes hand in hand with the subject, an historical sketch being given with each country. The currency and internal communication of each country are well described. The geography of South Africa is fully gone into, and much interesting information on comparatively recent events given respecting the Matabeles, the Mashonas and the South African Company. There is an index to the correct pronunciation of Indian names on page 100. Altogether the work is of great value and use to the pupil of the higher forms in 'Greater Britain.' No pains have been spared by the author to make this work what a good text-book should be, and we readily commend it to those preparing for the Matriculation Examination of the Madras University.

LONGMANS' GEOGRAPHICAL SERIES. Book 2. THE WORLD.

This is a volume of about 400 pages. It is intended for Junior Students and has 87 maps. Everything of interest in the study of the subject finds place in the 35 illustrations, such as the races of mankind, the trade-winds, springs, currents, the Nile delta and the tides. Each country has its physical and political map. There are also about a dozen excellent *relief* maps. The prominent facts are in larger print. Examination papers are to be found at the end of each country. Appended is a table of the more familiar names with their pronunciation.

The subject-matter is up to date. A good deal of interesting and useful matter not found in other works has been introduced. We have no hesitation in highly recommending the Series as Class-books in the Upper Secondary Department. The letter-press is all that can be desired and the book which is only 3 shillings might be used with the greatest advantage to the pupil for the three years of his course in the Upper Secondary Department.

BRIEF SKETCH OF THE HISTORY OF INDIA.

This work by Mr. Lazarus of the London Mission School, Vizagapatam, gives in language comparatively clear and simple a very fair account of the history of this country. It is broken up generally into small convenient chapters for each day's work. The leading divisions are about the same as those in Sinclair's history. The British Period embraces about seven-elevenths of the whole work. The facts are brought down to the present time. The three closing chapters comprise a brief yet full and interesting account of the administrations of the successive Viceroys. Almost all of the eight illustrations represent the foremost of India's British Heroes and Administrators. A useful chronological index is furnished of the prominent events, followed by some of the questions set for the Lower Secondary Examination. In a work of this kind intended for the young, it might be found very useful, if, at the close of each chapter, questions on the chief points are given. When the work is next revised, the language in para. 2 of page 1 might be made less ambiguous. The pupil might carry away with him the impression that the *Santals* and the *Bhils* are *hills* and not *tribes*. On page 4 *some time* is printed for *sometime* in two places and on page 36 *he* for *his*.

The price of the book is only 8 annas and will be found most useful to pupils of the 2nd and 3rd Forms of all Anglo-Vernacular Schools.

A PRIMARY PHYSICAL GEOGRAPHY. By John Thornton, M.A., Longmans' Geographical Series, Vol. 5. London, New York and Bombay: *Longmans Green & Co.*

The books treating of Geography, General and Physical, that have been published in recent years are legion, and as a consequence the student is bewildered by this overstocking of the market and is unable to distinguish good books from the claptrap publications which do more harm than good. Mr. Thornton's book belongs to the former class. It is written with judgment and skill. The topics considered are varied and treated in a manner at once interesting as well as instructive. The ease and simplicity of style with which it is written make it a suitable

Manual for the beginner. And it will also be of considerable help to teachers furnishing as it does plenty of matter in outline. The book is however susceptible of improvement in some directions. Facts are often set forth without any mention of the principles or causes that bring them about. For instance, in treating of the Trade Winds it is said, "both die out as they approach the belt of calms." No attempt is made to explain the reason why it should be so. The very interesting subject of eclipses might have been considered in the body of the book, instead of being relegated to a short note in the glossary. A coloured diagram to illustrate the progress of the tidal-wave would have added to the usefulness of the book. The maps illustrating the isothermal lines should have been coloured and so made more attractive. The interesting observations on 'Types and Races of Man' have no direct bearing on the subject. The author's bias in his description of the influence of Nature on Man his unmistakably strong and it is amusing to the reader to be told that the temperate climate is "the natural cradle of agriculture and civilisation." A glossary of terms astronomical, geological geographical and even chemical and a chapter containing Examination Questions are added at the end. The book is neatly printed, well illusrated and attractively bound in scarlet cloth.

THE LIFE OF KING HENRY THE FIFTH Edited by P. H. Sturge, M.A., Vice-Principal of the Nizam's College, Hyderabad, Late Scholar of King's College, Cambridge, Madras, *Srinivasa Varadachari, & Co.*, 1896.

We can extend a hearty welcome to this latest addition to Messrs. Srinivasa Varadachari's series of Shakespeare's plays. Our readers will probably remember that the series is under the general editorship of the Rev. F. W. Kellett, whose excellent Introduction on Shakespeare is prefixed to this as it is to the other plays in the series. Mr. Sturge has added an exhaustive introduction to the Play itself, copious notes, and appendices on Various Readings, Versification and Grammatical peculiarities. We are very glad to see that in this last he only professes a modified allegiance to Dr. Abbott. Though we are far from undervaluing the services rendered to Shakespeare study by that author, we think there can be no doubt that he writes rather too much as one holding a brief for Shakespeare's grammar, and Mr. Sturge recognising this, points out that there are irregularities in Elizabethan English that defy explanation—that do not come under any rule. The space occupied by the notes at first sight seems disproportionately large, especially as the Play is commonly thought to present fewer difficulties than most. Their

copiousness however seems to be partly the result of Mr. Sturge having incorporated in them a good many pages of illustrative extracts from Holinshed, which we think might more conveniently have formed another appendix, and partly from his laudable desire for complete explanations. He has a very good note on the tennis passage in Act I. But oddly enough he omits to mention that in Act IV. "Had the fore-hand and vantage of a king" "the fore-hand" and "vantage" are tennis terms. We rather doubt whether his explanation of "titles blown from adulation" is correct, though in it he follows the accepted opinion, which is in favour of making blown mean "puffed." The more probable meaning seems to us to be blown out, swollen, when the expression would be nearly equivalent to "farced titles" which occurs a few lines further down. These are in any case small matters, and we mention them because the fact that we have no more serious defect to notice in Mr. Sturge's notes is striking testimony to their general excellence. One quarrel we have with him or his publishers, and they can apportion the blame according to the merits of the case, and that is on the late appearance of their book V. The Play is set for the next F.A. examination in Madras, and this edition must have appeared too late to be of substantial service to any but a very few students.

MATHEMATICS.

Solutions of Questions.

102 ABCD is a cyclic quadrilateral. Shew that the orthocentres of the triangles BCD, CDA, DAB and ABC are on the circumference of a circle. —[*College of Engineering, Madras*, 1892.]

Solution by C. S. Mahadeva Aiyar, B.A.

Take E the midpoint of AD and join EB, EC. Cut off EG, EH equal respectively to $\frac{1}{3}$EB, $\frac{1}{3}$EC. G, H are the centroids of the triangles ABD, ACD; and GH is parallel to BC. Similarly if K, L are the centroids of BDC, BAC we shall have GHKL equiangular to quadrilateral CBAD. Now if P, Q, R, S are the orthocentres, $OG=\frac{1}{3}OP$, $OH=\frac{1}{3}OQ$, etc. *i.e.*, GH is parallel to PQ, etc. $\therefore$ PQRS is equiangular to ABCD and $\therefore$ inscribable in a circle.

106. (*S. Padmanabha Aiyar, B.A.*) Show that the solution of the general problem of finding the velocity of projection of a particle from the lowest point of a vertical circle in order that the particle after leaving the

circle may meet it at a given point, depends on the trisection of an arc.

(*Solution by C. S. Mahadeva Aiyar, B.A.*)

Let u be the velocity of projection, v the velocity at P where the particle leaves the circle, Q the given point; θ, ϕ the angles that the radii at P and Q make with the vertical; a the radius of the circle.

We know that $v^2=u^2-2ga(1+\cos\theta)$ I.

Since the pressure at P vanishes, $\dfrac{v^2}{a}=g\cos\theta$ II.

Now the time from P to Q is $\dfrac{a(\sin\theta+\sin\phi)}{v\cos\theta}$

$\therefore\ -a(\cos\theta+\cos\phi)=$ vertical displacement

$$=\frac{a.(\sin\theta+\sin\phi)\sin\theta}{\cos\theta}-\tfrac{1}{2}g\frac{a^2(\sin\theta+\sin\phi)^2}{v^2\cos^2\theta} \qquad \text{III.}$$

Substituting for v^2 from II, and reducing, we get

$$\cos\theta=\sin\frac{\theta+\phi}{2} \quad \text{or} \quad \theta=\frac{\pi-\phi}{3}$$

$\therefore$ the solution depends on the trisection of a circular arc.

118. (*J. Weir, M.A.*). In the year 1895 Easter Day fell on April 14th. In what year will it next fall on April 14th?

Solution by C. S. Mahadeva Aiyar, B.A.

The Dominical letter for 1895 was F and the years that have the same letter are, remembering that 1900 is not a leap year, 1901, 1907, 1912, etc. The rule by which this series is determined is obvious. Add 6 to a leap year or a year following a leap year, 5 to a year preceding a leap year, 11 to one preceding this.

Again the Golden Number for 1895 is 15 and the full-moon occurred on the 9th of April. Hence, in the 20th century, full-moon will occur between the 7th and the 13th of April for the Golden Numbers 7, 15, 4 and 12 only. The first year in the series having any of these golden numbers is found to be 1963.

134. (*K. C. Ramamurti.*) Prove that the triangle formed by joining the orthocentres of the three equilateral triangles described on the sides of and outside a right-angled triangle, is also an equilateral triangle. Also determine whether the in-centre of the triangle coincides with the centroid of the right-angled triangle.

(1.) *Solution by K. V. Natesa Aiyar, B.A., and others.*

Let ABc be the given right-angled triangle; a, b, c the orthocentres of triangles opposite to A, B, and C.

Let $Ao=l$, where O is the midpoint of AB.

Then $Oc=\dfrac{l}{\sqrt{3}}$ $\quad Oa=l\left(\cos A+\dfrac{\sin A}{\sqrt{3}}\right)$ $\quad Ob=l\left(\sin A+\dfrac{\cos A}{\sqrt{3}}\right)$

$$(ab)^2 = Oa^2 + Ob^2 = l^2 \left\{ \frac{4}{3} + \frac{4}{\sqrt{2}} \sin A \cos A \right\}$$

$$(bc)^2 = Ob^2 + Oc^2 + 2.ob.oc.\cos A$$

$$= l^2 \left\{ \frac{1}{3} + \sin^2 A + \frac{\cos^2 A}{3} + \frac{2 \sin A \cos A}{\sqrt{3}} + \frac{2}{\sqrt{3}} \left(\sin A + \cos \frac{A}{\sqrt{3}} \right) \right.$$

$$= l^2 \left(\frac{4}{3} + \frac{4}{\sqrt{3}} \sin A \cos A \right)$$

Similarly $(ca)^2 = l^2 \left(\frac{4}{3} + \frac{4}{\sqrt{3}} \sin A \cos A \right)$

$\therefore$ $ab = bc = ca$ and triangle abc is equilateral.

Again, if G be the centroid of triangle ABC,

$$bC = \frac{2l \cos A}{\sqrt{3}}, CG = \tfrac{2}{3}l, \text{ and angle } bCG = \overline{A + 30^\circ}$$

$$\therefore \quad bG^2 = bC^2 + CG^2 - 2bC \cdot CG \cdot \cos \overline{A + 30}$$

$$= R^2 \left(\frac{4}{9} + \frac{4}{3\sqrt{3}} \cos A . \sin A \right) = \tfrac{1}{3}(ab)^2$$

Similarly $aG^2 = R^2 \left(\frac{4}{9} + \frac{4}{3\sqrt{3}} \cos A \sin A \right) = bG^2 = cG^2$

Hence G is the incentre, etc., of triangle abc.

(2.) *Solution by C. S. Mahadeva Aiyar, B.A.*

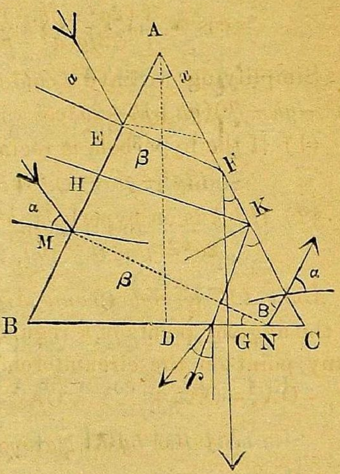
Let D, E, F be the vertices of equilateral triangles described positively on the sides of the right-angled triangle ABC. The circumcircles of DBC, ECA, FAB must meet at K the equiangular point. The lines joining the centres P, Q, R of these circles are perpendicular to the radical axes KC, KA, KB which meet one another at 120°. $\therefore$ PQR is an equilateral triangle.

Place masses each equal to m at P, Q, R and equal to $2m$ at A, B, C. These are together equivalent to masses each equivalent to $3m$ at the C.Gs, of triangles PBC, QCA, RAB. *i.e.*, P_1; Q_1, R, (say). Place again masses equal to $6m$ at A, B, C. Result is masses each equal to $9m$ at the centroids of P_1BC, etc. Repeat the process indefinitely. Since triangles PBC, QCA, RAB, are similar always, we see ultimately that three equal masses at P, Q, R with 3 equal masses at A, B, C are equivalent to 3 equal masses at the midpoints of BC, AC, AB. $\therefore$ the centroid of PQR coincides with the centroid of ABC. The solution takes no cognizance of the triangle being right-angled. This property holds for any triangle.

138. A ray of light incident in a principal plane on the face AB of a prism of isosceles section ABC, emerges at right-angles to the base BC after internal reflexion at AC. A secondray incident parallel to the first and emerging at the face AC after reflection at the base, undergoes a deviation of 160° ; while a third ray incident at right angles to AB and emerging at BC after reflexion at AC under goes a deviation of 130°. Show that the angle of the prism is 40° and the refractive index $\sqrt{3}$.

—[*Madras*, *B.A.*, 1896.]

Solution by A. Radhakrishna Aiyar, B.A., and others.



I. Ray EFG.

II. Ray MNO.

III. Ray HKL.

I. Ray ; $\beta + x +$ angle EFA $= 90^\circ$

$$\beta + x + \frac{x}{2} = 90^\circ$$

$$\text{or,} \quad 3x + 2\beta = 180^\circ \; \dots (1)$$

$$\sin \alpha = \mu \sin \beta \; \dots (2)$$

II. Ray : angle of emergence = angle of incidence

$$\text{Deviation} = \alpha - \overline{\beta + 2}\left(\beta + \frac{x}{2}\right)$$

$$+ \alpha - \beta = 2\alpha + x = 160^\circ \quad \dots (3)$$

III. Ray : $\text{Deviation} = 2\left(\frac{\pi}{2} - x\right) + \gamma - \left(\frac{\pi}{2} - \frac{3x}{2}\right) = \frac{\pi}{2} + \gamma - \frac{x}{2} = 130^\circ.$

$$i.e., \; \frac{x}{2} + 40^\circ = \gamma \; \dots . (4)$$

$$\text{and} \quad \sin \gamma = \mu \sin\left(\frac{\pi}{2} - \frac{3x}{2}\right) \; = \; \mu \cos \frac{3x}{2} \dots (5)$$

From (1), (2) and (3), $\sin\left(80 - \frac{x}{2}\right) = \mu \sin\left(90 - \frac{3x}{2}\right) = \mu \cos \frac{3x}{2}$

From (4) and (5), $\sin\left(40 + \frac{x}{2}\right) = \mu \cos \frac{3x}{2} \dots \dots$

Hence $80 - \frac{x}{2} = 40 + \frac{x}{2}$; or $x = 40^\circ$ and $\mu = \tan 60 = \sqrt{3}$

151. Find the locus of the pole of a chord of the hyperbola $xy = a^2$, which subtends a right angle at the point (h,k). What does the locus become when the point is on the hyperbola ?

Solution by R. Ramachendra Row, B.A.

Let f,g be a point on the locus.

Its polar is $gx + fy = 2\,a^2$.

Transferring to h,k as origin

$$gx + fy = 2a^2 - gh - fk. \qquad (1)$$

Equation of hyperbola to h,k as origin is

$$xy + hy + kx = a^2 - hk \qquad (2)$$

Equation of lines through new origin passing through intersection of (1) and (2) is

$$xy(2a^2 - gh - fk)^2 + (hy + kx)(gx + fy)(2a^2 - gh - fk) = (a^2 - hk)(gx + fy)^2$$

The above will represent lines at right angles if

$$(2a^2-gh-fk)\,(fh+gk)-(f^2+g^2)(a^2-hk)$$
$$=\cos\,\omega\left\{\begin{array}{l}(2a^2-gh-fk)^2+(2a^2-gh-fk)(gh+fk)\\ -2fg(a^2-hk).\end{array}\right.$$

Simplifying we have a conic

$$(2a^2-gh-fk)(gk+fh-2a^2\cos\omega)=(a^2-hk)(f^2+g^2-2fg\cos\omega)$$

(1) If the hyperbola is rectangular $\cos\omega=0$, and the locus is

$$(2a^2-gh-fk)\,(gk+fh)=(a^2-hk)\,(f^2+g^2)$$

(2) If h,k is on hyperbola, $a^2=hk$, and locus is two lines

$$2a^2=gh+fk \quad \text{and} \quad gk+fh=2a^2\cos\omega.$$

153. (*K. K. Subramania Aiyar, B.A.*) $A_1, A_2, A_3 \ldots\ldots A_{2n+1}$, are the angular points of a regular polygon inscribed in a circle and O is any point on the circumference between A_1 and A_{2n+1}, prove that $OA_1+OA_3+OA_5+\ldots\ldots OA_{2n+1}=OA_2+OA_4+\ldots\ldots+OA_{2n}$.

Solution by K. Narayana Nair, B.A., and others.

Let P be the centre of the circle and R its radius. Denote the angle OPA_{2n+1} by θ. The angle subtended at the centre by each of the equal sides is $\dfrac{2\pi}{2n+1}$.

$$\therefore \quad OPA_1=\alpha,\ OPA_2=(\alpha+\beta)\ \ldots\ldots\ OPA_{2n+1}=\alpha+2n\beta$$

$$\text{where} \quad \alpha=\frac{2\pi}{2n+1}-\theta \quad \text{and} \quad \beta=\frac{2\pi}{2n+1}.$$

$$\therefore \quad OA_1=2R\sin\frac{\alpha}{2},\ \ OA_2=2R\sin\frac{\alpha+\beta}{2}\ \ldots\ldots$$

$$OA_{2n+1}=2R\sin\frac{\alpha+2n\beta}{2}.$$

From the above we have $OA_1-OA_2+OA_3-\ldots\ldots+OA_{2n+1}$

$$=2R\left\{\sin\frac{\alpha}{2}-\sin\frac{\alpha+\beta}{2}+\sin\frac{\alpha+2\beta}{2}-\ldots\ldots+\sin\frac{\alpha+2n\beta}{2}\right\}$$

$$=2R\left\{\sin\frac{\alpha}{2}+\sin\left(\frac{\alpha+\beta}{2}+\pi\right)+\sin\left(\frac{\alpha+2\beta}{2}+2\pi\right)+\ldots\ldots\right\}$$

$$=2R\left\{\sin\left[\frac{\alpha}{2}+n\left(\pi+\frac{\beta}{2}\right)\right]\sin\frac{2n+1}{2}\left(\pi+\frac{\beta}{2}\right)\right\}\Big/\sin\left(\frac{\pi}{2}+\frac{\beta}{4}\right)$$

$$=0;\ \text{for}\ \sin\frac{2n+1}{2}\left(\pi+\frac{\beta}{2}\right)=\sin\,(n+1)\pi=0.$$

$$\therefore \quad OA_1+OA_3+\ldots\ldots+OA_{2n+1}=OA_2+OA_4+\ldots\ldots+OA_{2n}.$$

166. (*S. Padmanabha Aiyar, B.A.*) An elliptic arc bounded by the major axis of length $2a$, is illuminated by a bright point at the focus S. Shew that the illumination is a *minimum* at a point P such that $SP=\dfrac{5a}{3}$, if the eccentricity (e) *be greater than* $\frac{2}{3}$. Also determine the points of maximum and minimum illumination when $e<\frac{2}{3}$.

Solution by V. Raghunatha Row, B.A., and others.

The illumination varies as $\frac{\sin\theta}{r^2}$, where r denotes SP and θ the angle which the tangent at P makes with SP.

$$\operatorname{Sin}\theta = \frac{\text{SY}}{\text{SP}} = \frac{\text{S'Y'}}{\text{S'P}} \text{ with the usual notation.}$$

$$= \sqrt{\frac{\text{SY.S'Y'}}{\text{SP.S'P}}} = \frac{b}{\sqrt{r(2a-r)}}.$$

$\therefore$ illumination is least when $r^5\,(2a-r)$ is greatest, *i.e.*, when $r=\frac{5a}{3}$. SP cannot be equal to $\frac{5a}{3}$ when $e<\frac{2}{3}$, for it is always less than SA$'$.

When $e<\frac{2}{3}$ the points of maximum and minimum illuminations are the ends of the major axis.

168. (*K. K. Subramania Iyer B. A.*) Solve the following simultaneous equations in $x_1, x_2 \ldots\ldots x_n$.

$$\frac{x_1}{a_1+b_1}+\frac{x_2}{a_1+b_2}+\frac{x_3}{a_1+b_3}+\ldots\ldots+\frac{x_n}{a_1+b_n}=1.$$

$$\frac{x_1}{a_2+b_1}+\frac{x_2}{a_2+b_2}+\frac{x_3}{a_2+b}+\ldots\ldots+\frac{x_n}{a_2+b_n}=1.$$

$$\ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots$$

$$\ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots$$

$$\frac{x_1}{a_n+b_1}+\frac{x_2}{a_n+b_2}+\frac{x_3}{a_n+b_3}+\ldots\ldots+\frac{x_n}{a_n+b_n}=1.$$

Solution by R. Srinivasan, and others.

168. Let $f(y)=1-\left(\frac{x_1}{y+b_1}+\frac{x_2}{y+b_2}+\ldots\ldots\frac{ax}{y+b_n}\right)=0$;

then, because of the given equations, $a_1\, a_2, \ldots\ldots a_n$ are the roots of $f(y)=0$; therefore we have

$$\frac{(y-a_1)(y-a_2)\ldots\ldots(y-a_n)}{(y+b_1)(y+b_2)\ldots\ldots(y+b_n)}=1-\left(\frac{x_1}{y+b_1}+\frac{x_2}{y+b_2}\ \ldots+\frac{x_n}{y+b_n}\right)$$

Now, to find the values of x_1, multiply up by $(y+b_1)$, and put $y=-b_1$. Thus

$$x_1=\frac{(b_1+a_1)(b_1+a_2)\ldots\ldots(b_1+a_n)}{(b_1-b_2)(b_1-b_3)\ldots\ldots(b_1-b_n)}$$

Similarly $x_2, x_3 \ldots$ can be found.

169. (*C. N. Cama.*) An equilateral triangle ABC is inscribed in a circle, centre O: two hyperbolas are drawn, the first has C for a focus and OA for directrix and passes through B; the second has C as focus, OB as directrix and passes through A. Prove that these hyperbolas meet the circle in eight points which with C form the angular points of a regular polygon of nine sides.

(1) *Solution by R. Ramachendra Row, B.A.*

Take C as polar origin and CO as axis.

Then $r=d\cos\theta$ is the circle and $\frac{l}{r}=-1+e\cos\overline{\theta-\alpha}$ is the equation of any conic with focus C, of which l is the semi-*latus rectum*, e is the eccentricity and α is the angle which the axis makes with the initial line.

$$e=\frac{\text{focal-distance}}{\text{distance from directrix}}=\frac{\text{CB}}{+\text{perp. from B on OA}}=2$$

$\alpha=-30°$.

$l=e\times$distance of focus from directrix

$=2\times$perpendicular from C on $\text{OA}=\text{CB}=d\cos 30$

$\therefore$ equation of first hyperbola is

$$\frac{d\cos 30}{r}=-1+2\cos(\theta+30)$$

Where this meets circle $r=d\cos\theta$ we have

$$\frac{d\cos 30}{d\cos\theta}=-1+2\cos(\theta+30);$$

$\therefore\ \cos 30=2\cos\theta\cos(\theta+30)-\cos\theta$,

or $\cos(2\theta+30)=\cos\theta$

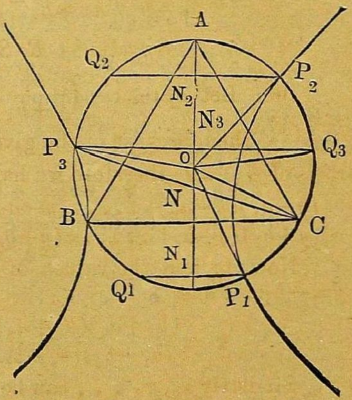
Solving $\theta=110, 230, 330, 350$.

These are angles measured from C; reducing them to the centre, the arcs measured from C are 80°, 200°, 240°, 320°.

These are four angular points of the nonagon.

Similarly the other four points are determined by the other hyperbola.

(2.) *Solution by T. Sankara Row, B.A.*



OA being a directrix, C a focus, and B a point on the curve it is evident that the eccentricity is 2.

$\therefore\ CP_1=2P_1N_1$.

$\therefore$ angle $COP_1=2P_1ON_1$.

$\therefore$ angle $COP_1=40°$ and angle $P_1ON_1=20°$ } angle CON_1 being 60°.

Similarly angle $COP_2=80°$ and angle $P_2ON_2=40°$ } angle CON_2 being 120°.

Similarly again angle $COP_3=160°$ and angle $P_3ON_3=80°$ } the re-entering angle CON_3 being 240°

Now it is clear that the arcs CP_1, P_1Q_1, Q_1B, BP_3, P_3Q_2, Q_2A, AP_2, P_2Q_3 and Q_3C are each of 40°.

Therefore we have a regular nonagon.

The hyperbola here described cuts the circle at the four points P_1, P_2 P_3 and B.

From symmetry it is easily seen that the ether curve cuts the circle at the four points Q_1, Q_2, Q_3 and A.

Thus the two curves cut the circle in eight points.

171. (*V. R. Thyagaraja Aiyar, M.A.*). Find the cartesian and intrinsic equations of a plane curve which is such that the radius of curvature at any point on the curve is equal to the length of the curve measured from a fixed point on the curve up to that point. Trace the curve.

Solution by C. S. Mahadeva Aiyar, B.A.

$$\text{By hypothesis } s-\rho=\frac{ds}{d\Psi}$$

$\therefore\ s=e^{\Psi}$ is the intrinsic equation

$$\frac{dx}{d\psi}=\frac{dx}{ds}\cdot\frac{ds}{d\psi}=\cos\psi e^{\Psi};$$

$$\therefore\quad x=\int\cos\psi\ e^{\Psi}d\psi=\frac{1}{\sqrt{2}}e^{\Psi}\cos\left(\psi-\frac{\pi}{4}\right)$$

$$\text{Similarly } y=\frac{1}{\sqrt{2}}\ e^{\Psi}\sin\left(\Psi-\frac{\pi}{4}\right)$$

$$\therefore\quad x^2+y^2=\tfrac{1}{2}\ e^{2\Psi}\quad\text{and}\quad\frac{y}{x}=\tan\left(\psi-\frac{\pi}{\Psi}\right)$$

$$\therefore\quad\text{the cartesian equation is }\log_e 2(x^2+y^2)=\frac{\pi}{2}+2\tan^{-1}\frac{y}{x}$$

Reduced to polars and axis changed this is seem to be the equiangular spiral, and is easily traced.

173. (*S. Venkataramanan.*) Prove that

$$\frac{\pi^2}{9}=1+\tfrac{1}{2}\cdot\tfrac{1}{3}(\tfrac{1}{2})+\tfrac{1}{3}\cdot\tfrac{1}{3}\cdot\tfrac{2}{5}(\tfrac{1}{2})^2+\tfrac{1}{4}\cdot\tfrac{1.2.3}{3,5.7}(\tfrac{1}{2})^3+\ \ldots\ldots$$

Solution by M. T. Narayan Aiyangar, M.A., and others.

Put $x=\frac{1}{2}$ in the expansion of $(\sin^{-1}x)^2$ in powers of x.

175. (*G. Rama Aiyangar, B.A.*) Solve the equations

$$\frac{x}{a+y+z}=\frac{y}{b+z+x}=\frac{z}{c+x+y};\ \text{and } ax+by+cz=(x+y+z)^2.$$

Solution by R. Ramachendra Row, B.A., and M. T. Narayana Aiyangar, M.A.

$$\text{Let }\lambda=\overline{x+y+z}\quad\text{then}$$

$$\frac{x}{a+\lambda-x}=\frac{y}{b+\lambda-y}=\frac{z}{c+\lambda-z}\ \text{and each}=\frac{\lambda}{a+b+c+2\lambda}$$

$$\text{also }=\frac{ax+by+cz}{\Sigma(a)^2+\lambda(\Sigma a)-(ac+by+cz)}=\frac{\lambda^2}{\Sigma(a^2)+\lambda\Sigma(a)-\lambda^2}$$

$$\text{Hence}\quad\lambda=\Sigma(a)^2/\sqrt{3}.$$

Questions for Solution.

159. (*V. R. Thyagaraja Aiyar, M.A.*) If perpendiculars be let fall from any point P on the sides of a regular polygon, prove that (*a*) the mean centre of their feet is the middle point of OP, where O is the cen-

tre of the polygon, (b) the locus of the mean centre of any $(n-1)$ feet is a circle, the polygon being one of n sides.

190. (*V. R. Thyagaraja Aiyar, M.A.*) The locus of the circum-centres of equilateral triangles inscribed in a conic, is a conic of the same kind. Examine the cases when the conic is (a) a pair of straight lines (b) a circle.

Find also the envelope of the circum-circles of these triangles.

191. (*V. Ramasawmy Aiyar, M.A.*) Any conic being inscribed in a given triangle ABC, if a confocal to it be taken passing through the circum-centre O; then the circle through the intersection of these two confocals touches the nine-points circle of triangle ABC.

192. (*V. Ramaswami Aiyar, M. A.*) If H_r the sum of the homogenous products of r dimensions of n positive quantities has a given value; prove that H_1, H_2, H_3, ... H_{r-1} have their greatest possible values and H_{r+1}, H_{r+2} . . . . . . ad infinitum, have their least possible values when the n quantities are all equal.

193. (*C. N. Cama.*) To find the area of the triangle formed by joining the circum-centre, the in-centre and the ortho-centre of a triangle.

194. If $\tan 2\alpha - \tan\alpha = \tan 2\beta - \tan\beta = \tan 2\gamma - \tan\gamma$,

then $\alpha+\beta+\gamma$ is an odd multiple of $\frac{\pi}{2}$. —[*Hobson.*]

195. A polygon of $2n$ sides, n of which are equal to a and the other n to b is inscribed in a circle. Shew that the radius of the circle is $\frac{1}{2}\left(a^2+2\,ab\cdot\cos\frac{\pi}{n}+b^2\right)^{\frac{1}{2}}\operatorname{cosec}\frac{\pi}{n}$. —[*Hobson.*]

196. (*C. N. Cama.*) If a, b, c be the radii of three circles touching one another externally, and r_1 and r_2 the radii of the two circles that touch all three, then $\frac{1}{r_1}+\frac{1}{r_2} = 2\left(\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right)$.

197. (*T. Sundara Row, B.A.*) If the intercept of a diameter of a circle between the diagonals of a quadrilateral inscribed therein be bisected at the centre, the intercepts of the same diameter between the pairs of opposite sides of the quadrilateral are also bisected at the centre.

198. ABC is a spherical triangle. The tangents to the arcs BC, CA, AB at their extremities meet in A′,B′,C′ respectively. Prove that the sides of the plane triangle A′B′C′ are proportional to the sines of the sides of the spherical triangle.—[*Madras Provincial Civil Service*, 1895.]

199. (*J. Johnson, B.A.*) ABC is a triangle whose sides pass through three given points and whose angular points A and B move along two given straight lines OAX and OBY respectively: find the locus of C.

NOTICE TO CORRESPONDENTS.

[*Mathematical contributors are requested* (1) *to write each Question and each Solution on a separate paper* (*otherwise when used for printing, the Editor has the trouble of entirely re-writing such articles*), (2) *to make their solutions as short as possible and* (3) *to write on one side only and not on both sides of the paper.*—EDITOR.]

NOTIFICATIONS.

BOMBAY.

List of appointments in the Educational Department for the month of September 1896.

2nd September 1896.—Mr. D. S. Kelkar, Head Master, Anglo-vernacular School Mulegaon, is appointed 14th Assistant Master, Nasik High School.

3rd September 1896.—Mr. W. B. Parchure B.A. is confirmed as 1st Assistant Master, Poona High School; Mr. A. R. Kale B.A. is confirmed as 1st Assistant Master, Nasik High School; Mr. V. V. Patwardhan B.A. is confirmed as 2nd Assistant Master Garud High School, Dhulia.

16th September 1896.—The following appointments are made in the Government Central Book Depot Bombay; Mr. G. V. Dixit to be 2nd Clerk; Mr. P. G. Dandekar to be 3rd Clerk; Mr. D. L. Aras to be 4th Clerk; Mr. M. B. Wagle to be 5th Clerk; Mr. R. R. Datir to be 6th Clerk; Mr. N. C. Gore to be 7th Clerk; Mr. S. S. Sahasrabudhe to be 9th Clerk; Mr. R. R. Datar, 16th Assistant, Belgaon High School, is appointed 12th Assistant Dharwar High School; Mr. P. D. Unkalkar, 13th Assistant, Karwar High School is appointed 16th Assistant Belgaon High School; Mr. G. K. Hattangdi is confirmed as 13th Assistant-Master, Karwar High School.

The following appointments are made in the Dharwar High School; Mr. G. S. Gudi to be 13th Assistant; Mr. Shaik Karimuddin to be 14th Assistant.

The following appointments are made in the Bijapur High School; Mr. K. S. Kale to be 6th Assistant; Mr. D. V. Joglekar P.E. to be 7th Assistant; Mr. B. B. Divekar to be 8th Assistant; Mr. Mir Imdadulli to be 9th Assistant. Mr. N. M. Mahishi to be 10th Assistant; Mr. B Pereria is appointed 12th Assistant-Master, Karwar High School.

The following appointments are made in the Dharwar High School; Mr. S. B. Allur to be 6th Assistant; Mr. B. M. Sangit to be 7th Assistant; Mr. V. S. Kale P.E. to be 8th Assistant; Mr. H. S. Sagar is appointed 10th Assistant Master, Belgaon High School.

21st September 1896.—The following appointments are made in the Ahmedabad Training College; Mr. P. G. Pandya to be 5th Assistant; Mr. F. F. Munshi to be 6th Assistant; Mr. V. A. Palkar to be 7th Assistant.

28th September 1896.—The following appointments are made in the Elphinstone High School; Mr. F. K. Bajan to be 9th Assistant; Mr. N M. Panri to be 10th Assistant; Mr. S. B. Doctor to be 11th Assistant; Mr. E. R. Sahiar to be 12th Assistant; Mr. F. P. Desai to be 13th Assistant; Mr. R. L. Damania to be 14th Assistant; Mr. M. I. Kadri to be 15th Assistant; Mr. N. K. Daji to be 16th Assistant; Mr. S. M. Vazifdar to be 17th Assistant; Mr. U. G. Dewan to be 18th Assistant; Mr. S. Maiuuddin to be 19th Assistant; Mr. J. B. Mehta to be 20th Assistant; Mr. B. M. Bahadurji to be 21st Assistant; Mr. B. M. Sutaria, B.A. to be 22nd Assistant.

MADRAS.

SCHOLARSHIPS AVAILABLE IN TRAINING SCHOOLS.

The Inspector of Schools, Western circle, notifies that scholarships of the following grades and value, tenable for 12 months from January 1897, are available in the undermentioned Training Schools. Candidates intending to apply for them are required to submit their applications through the Range Sub-Assistant Inspectors of Schools to the Headmasters concerned together with the certificates of (1) health, age and vaccination, (2) conduct and (3) education, on or before the 5th November next.

Name of Training School.	Grade of scholarship.	Number of scholarships	Value of each scholarship.
			RS.
Government Upper Secondary Training School, Coimbatore.	Upper Secondary.	10	10
	Lower Secondary.	15	6
	Primary ...	25	5
Government Upper Secondary Training School, Calicut.	Upper Secondary.	8	10
	Lower Secondary.	15	6
	Primary ..	25	5
Government Lower Secondary Training School, Salem.	Lower Secondary.	15	6
	Primary ...	25	5
Government Lower Secondary Training School, Trichinopoly.	Lower Secondary.	15	6
	Primary ..	25	5
Government Lower Secondary Training School, Mangalore.	Lower Secondary.	15	6
	Primary ...	25	5
Government Lower Secondary Training School for Mapillas, Calicut.	Lower Secondary.	15	6
	Primary ...	25	5
Government Primary Training School, Badagara.	Primary ...	25	5

ADMISSION OF STUDENTS IN THE RAJAHMUNDRY COLLEGE (TRAINING SECTION)

JANUARY 1897.

Notice is hereby given that scholarships of the following grades tenable for twelve months are available in the Rajahmundry College, Training Section, from January 1897.

First-grade, Collegiate ... ... 6 at RS. 15 each.
Second-grade Collegiate ... ... 10 at „ 12 „

2. The above scholarships are open to graduates and undergraduates of the Northern Circars and Ceded Districts excluding Cuddapah.

3. In addition to the above stipendiaries, the Principal is prepared to admit candidates whose stipends are payable from Local, Municipal or Private Funds or candidates as free students, subject to the sanction of the controlling authority, due regard being paid to the requirements of the Practising School.

4. Every candidate for admission shall submit with his application the following certificates: —

(i) A certificate of health from a Civil Surgeon certifying that the candidate is physically fit to perform efficiently the duties of a teacher.

(ii) A certificate from a competent authority to the effect that the candidate's age is not less than 14 and does not exceed 25 years, or in the case of a candidate who has been employed continuously as a teacher in a recognised school for not less than three years, that his age does not exceed 35.

(iii) A certificate of conduct signed by an Inspector or an Assistant Inspector or the President of a Local Board or the Chairman of a Municipal Council or the Manager or Principal or Head Master of a recognised College or High School.

(iv) A certificate of Education.

The minimum requirements shall be—

(1) For First-grade Collegiate Training class, a graduate's diploma of a University in the British Empire.

(2) For Second-grade Collegiate Training class, a certificate of having passed the First Examination in Arts of the Madras University,

5. For further particulars, applicants are referred to Chapter VI of the revised edition of the Madras Educational Rules.

6. Application for admission should reach the undersigned on or before the 1st November 1896 and should be made in form given in the Madras Educational Rules (*vide* appendix O).

Rajahmundry College, Training Section, 29*th September* 1896.

E. W. MIDDLEMAST, *Ag. Principal.*

RULES FOR THE KRUPABAI SATTHIANADHAN MEDICAL SCHOLARSHIP.

The scholarship called "The Krupabai Satthianadhan Medical Scholarship" is attached to the Madras Medical College.

2. The scholarship is open to women who are natives of India, other than Europeans or Eurasians, who are desirous of qualifying for the medical profession in the Apothecary or higher grades.

3. The scholarship carries a stipend of Rs. 25 *per mensem* tenable for the period of the course for which the candidate is selected.

4. In the event of a candidate being appointed after commencing her course the scholarship will be held for the remaining period alone.

5. If, for any reason a candidate is remanded for an extra course of training, the scholarship may be withheld for such extra period.

6. The candidate must have completed the required educational tests for the grade in which she is desirous of qualifying and must produce satisfactory testimonials of character and certificates of health and age.

7. The candidate will be selected by the Principal of the Medical College in consultation with the Director of Public Instruction and the Surgeon-General with the Government of Madras, subject to the approval of the Dufferin Fund Committee and will be under the supervision of the latter during her course of instruction.

8. The Committee of the Countess of Dufferin's Fund may reduce, suspend or entirely withdraw a scholarship on the recommendation of the College Council, if the holder of it shows a want of zeal or ability and is likely to prove inefficient or for other reasons.

9. If a scholarship becomes vacant any time before the completion of the course, any other candidate qualified under the rules may be selected to fill the vacancy.

10. The scholarship holder shall receive gratuitous education at the Medical College.

11. The selected candidate will be required to enter into a bond with the Dufferin Fund to refund the amount of stipends drawn by her if she resigns her scholarship, without sufficient reason.

12. Applications to be addressed to the Honorary Secretary, Countess of Dufferin's Fund, Government House.

Applications for above scholarship are invited.

GOVERNMENT HOUSE, OOTACAMUND, 18*th August* 1896.

W. B. BROWNING, Surgeon-Major. *Hony. Secy., Countess of Dufferin's Fund.*